

Carvana, LLC – 61 Kane St

Town of West Hartford, CT

SPECIAL FLOOD HAZARD AREA (SFHA) APPLICATION

April 22, 2022

Prepared by:

Bowman

Bowman Consulting Group, Ltd.

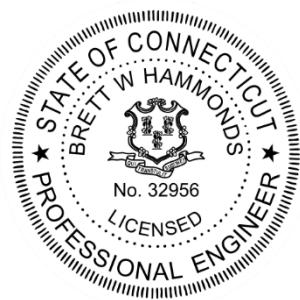
3951 Westerre Parkway, Suite 150

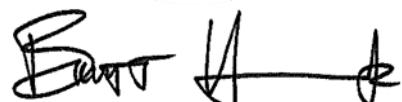
Richmond, Virginia 23233

Phone: 804-616-3240

Fax: 804-270-2008

www.bowmanconsulting.com



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INTRODUCTION

This Special Flood Hazard Area Application is submitted pursuant to the Town of West Hartford Zoning Code, Section 177-8 in support of the proposed Carvana Fulfillment Center / Vending Machine to be located at 61 Kane Street in West Hartford, CT.

EXISTING SITE CONDITIONS

61 Kane St (GPIN 2991 1 61 0001) is ±1.27 acres located on the south side of Kane Street, and bounded to the east and south by the entrance ramp to Interstate 84, west of Prospect Avenue (the "site"). The site is located within the DEEP Basin # 4400-01-3-R2, within the Park River subregional basin.

The existing building located on the site is a ±5,880 SF and is a 1-story restaurant/diner with accompanying site driveway, parking, and loading facilities, underground utilities, and grading & drainage improvements.

According to the Flood Insurance Study of Hartford County, CT conducted by the Federal Emergency Management Agency (FEMA), a portion of the site is located in the FEMA Flood Zone X (unshaded) and Flood Zone A (see Site Plan Sheet C1.0). The FEMA line associated with this site is provided on FEMA panel 09003C0364F (effective 09/26/2008) and is depicted on the Site Plan sheets by incorporating the map into CAD software. The explanation of each FEMA Zone is as follows:

- Zone X (unshaded) is considered an area of Minimal Flood Hazard, outside the 1- and 0.2-percent-annual-chance floodplains. No BFEs or base flood depths are shown within these zones.
- Zone A is considered to be within a Special Flood Hazard Area (SFHA) and is an area subject to inundation by the 1-percent-annual-chance flood event. Because detailed hydraulic analyses have not been performed, a Base Flood Elevation (BFE) or flood depth is not shown with these zones.

PROJECT DESCRIPTION

The development consists of the construction of a ±5,800 SF five-tier vertical glass and steel parking and exhibition structure that utilizes an automated vending machine that allows vehicles to be stacked temporarily in a vertical configuration until they are retrieved for the customer. Site improvements consist of an entrance drive, utilities, drainage, and landscaping.

The proposed development will result in the following area alterations to the SFHA:

	Existing	Proposed
Site Area within SFHA (SF)	6,700	6,700
Building Area within SFHA (SF)	315	0
Total Impervious area within SFHA (SF)	440	2,110

Additionally, a proposed segmental block retaining wall will be partially located within the SFHA.

COMPLIANCE WITH SECTION 177-8 REQUIREMENTS

The following discussion addresses the applicable requirements of Section 177-8E (*Standards for Plan Approval*) of the Town of West Hartford Zoning Code in conformance with the procedural requirements of Section 177-8F (*Approval Procedure*).

SECTION 177-8E STANDARDS

The following provides brief responses to all the standards within code section 177-8E.

177-8E(1) – General Standards

- Section 177-8E(1)(a) does not apply since the new construction is *not* "located entirely or partially over water."
- Section 177-8E(1)(b) does not apply since the new water supply systems are located outside of the SFHA boundary.
- Section 177-8E(1)(c) applies and the proposed construction will comply by using MDC-approved construction standards and materials for sanitary sewage systems (specifically, underground sanitary sewer piping).
- Section 177-8E(1)(d) does not apply due to the fact that the proposed waste disposal system (dumpster) is located on the western side of the site, which is completely outside and away from the SFHA boundary.
- Sections 177-8E(1)(e) and (f) also do not apply to the proposed development.
- Sections 177-8E(1)(g) through (j) are addressed in further detail below.

177-8E(2) – Specific Standards

- Section 177-8E(2)(a) applies, but the standard for is dependent on the existence of a BFE, which this floodway does not contain. Furthermore, the proposed building does not reside within the SFHA.
- Sections 177-8E(2)(b) & (c) do not apply due to differing project use category.
- Section 177-8E(2)(d) applies, and compliance is shown below by applying the methodology discussed in Section 1778E(1)(i).

1778-E(3) – Standards for Watercourses without established base flood elevations (unnumbered A Zone)

- Section 177-8E(3)(a) does not apply due to the lack of a residential or nonresidential structure residing within the SFHA.
- Sections 177-8E(3)(b) & (c) do not apply to Zone A floodways.

177-8E (4) Design standards for subdivision proposals

- Does not apply.

SECTION 177-8E(1)(g) – PARTIAL STRUCTURE WITHIN SFHA

If any portion of a structure lies within the SFHA, the entire structure is considered to be in the SFHA and must meet the construction requirements of the flood zone.

No portion of the proposed building resides within the SFHA. But, because the proposed retaining wall is partially located in the SFHA, the entire structure must meet the construction requirements of the flood zone, as further explained under Section 177-8e(1)(j) compliance below.

SECTION 177-8E(1)(h) – COMPENSATORY STORAGE

The water-holding capacity of the floodplain, except those areas which are tidally influenced, shall not be reduced. Any reduction caused by filling, new construction or substantial improvements involving an increase in footprint to the structure shall be compensated for by deepening and/or widening of the floodplain. Storage shall be provided on-site, unless easements have been gained from adjacent property owners; it shall be provided within the same hydraulic reach and a volume not previously used for flood storage; it shall be hydraulically comparable and incrementally equal to the theoretical volume of floodwater at each elevation, up to and including the 100-year flood elevation, which would be displaced by the proposed project. Such compensatory volume shall have an unrestricted hydraulic connection to the same waterway or water body. Compensatory storage can be provided off-site with approval by the Director of Community Development.

As confirmed in the discussion with staff of the Planning and Engineering Divisions on April 7, 2020, because there is no BFE for Zone A in which the disturbance will occur, the following two compliance methodologies have been deemed acceptable.

Compliance Methodology No. 1

The cut/fill calculation shown below as Figure 1 (and on Site Plan Sheet C6.2) shows an overall "cut" earthwork scenario (calculated using AutoCAD Civil 3D software) within the flood zone boundary depicted in the plan view. Conceptually, the number shown constitutes the amount of volume added to the floodplain, which effectively increases its water-holding capacity.

Volume Summary							
Name	Type	Cut Factor	Fill Factor	2d Area (Sq. Ft.)	Cut (Yd)	Fill (Cu. Yd.)	Net (Cu. Yd.)
CUTFILL - SITE	full	1.000	1.000	45958.64	876.76	329.30	547.45<Cut>
FLOODPLAIN BOUNDARY	bounded	1.000	1.000	6150.88	188.72	120.25	68.47<Cut>
Totals							
		2d Area (Sq. Ft.)		Cut (Cu. Yd.)		Fill (Cu. Yd.)	Net (Cu. Yd.)
Total		52109.52		1065.48		449.55	615.92<Cut>

* Value adjusted by cut or fill factor other than 1.0

Figure 1 – Cut Fill Report

Compliance Methodology No. 2

The Incremental Storage Analysis Table shown below as Figure 2 (and on Site Plan Sheet C6.2) presents an incremental breakdown of each elevation within Zone A, measured in area (through AutoCAD software) and equivalent volume (calculated using average end-area method). This table demonstrates that there is an increase in area and volume at each elevation within the Zone A on the site.

INCREMENTAL STORAGE ANALYSIS TABLE						
Stage Elevation	Pre-Development			Post-Development		
	Area (Sq. Ft.)	Volume (Cu. Ft)	Volume (Cu. Yd)	Area (Sq. Ft.)	Volume (Cu. Ft)	Volume (Cu. Yd)
47' Contour	0.00			0.00		
48' Contour	71.53	35.77	1.32	118.29	59.15	2.19
49' Contour	705.26	388.39	14.38	875.44	496.86	18.40
50' Contour	1564.03	1134.64	42.02	1893.00	1384.22	51.27
51' Contour	2618.55	2091.29	77.46	2920.10	2406.55	89.13
52' Contour	3873.55	3246.05	120.22	3929.75	3424.93	126.85
53' Contour	5362.39	4617.97	171.04	6066.00	4997.88	185.11
53'+ Contour	6654.34	6008.36	222.53	6654.34	6360.17	235.56
	Cum. Volume:		648.98	Cum. Volume:		708.51

Figure 2 - Incremental Storage Analysis Table

The plan & cross-section views (Figures 3a and 3b below as well as on Site Plan sheet C6.2) graphically depict the incremental areas being presented in tabular form in the Incremental Storage Analysis Table.

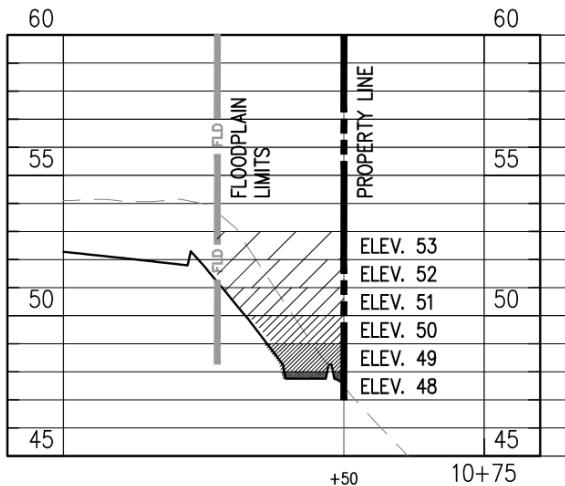


Figure 3a – Cross-Section of SFHA

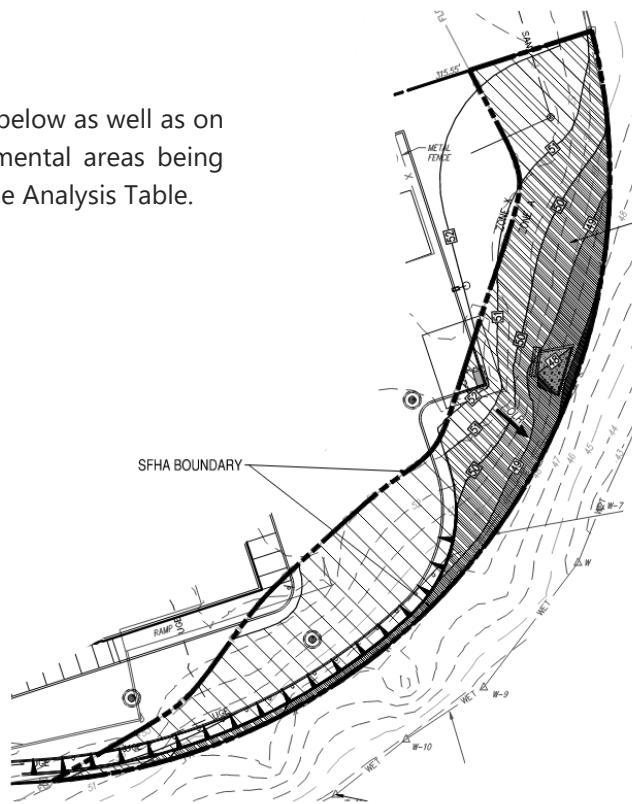


Figure 3b - Plan of SFHA

In summary, the calculations for these two methodologies show an overall increase in water-holding capacity of the floodplain within the site, demonstrating compliance with Section 177-8E(1)(h).

SECTION 177-8E(1)(i) – EQUAL CONVEYANCE

Within the floodplain, except those areas which are tidally influenced as designated on the Flood Insurance Rate Map (FIRM) for the community, encroachments resulting from filling, new construction or substantial improvements involving an increase in footprint of the structure, are prohibited unless the applicant provides certification by a registered professional engineer demonstrating, with supporting hydrologic and hydraulic analyses performed in accordance with standard engineering practice, that such encroachments shall not result in any 0.00 feet increase in flood levels (base flood elevation). Work within the floodplain and the land adjacent to the floodplain, including work to provide compensatory storage shall not be constructed in such a way so as to cause an increase in flood stage or flood velocity.

As also confirmed in discussions with staff of the Planning and Engineering Divisions on April 7, 2020, because there is no BFE for Zone A in which the disturbance will occur, the following compliance methodology has been deemed acceptable.

Compliance Methodology

The Pre-/Post-Development Analysis Table shown below as Figure 4 and on Plan Sheet C6.2 shows a comparison between pre-developed and post-developed stormwater discharges from the site, as calculated in the *HydroCAD Routing Report* accompanying this application. This calculation encompasses on-site point discharges and "bypass" that both contribute to an overall site release rate, which, in fact, is less than the pre-development runoff rate in the post-developed scenario through the use of underground storm pipe storage and Hydrodynamic Separator with internal overflow weir. The table shows a decrease in post-development runoff discharges from the site for all critical storm events.

Pre- / Post-Development Analysis		
Storm Event	OUTFALL POINT "A" - UNDERGROUND DETENTION	
	Pre-Development	Post-Development
	Peak Flow (cfs)	Peak Flow (cfs)
2-year	3.51	2.98
5-year	4.89	3.83
10-year	6.04	4.77
25-year	7.61	6.92
50-year	8.75	8.33
100-year	10.00	9.79

Figure 4 - Pre-/Post-Developed Runoff Analysis

The analyses showing compliance with Section 177-8E(1)(h) (*Compensatory Storage*) above also help to show compliance of this Section 177-8E(1)(i) by virtue of the fact that by increasing the physical volume and capacity of the flood zone within the site, the aforementioned lower runoff generated by the post-developed site is also discharged into a larger "volume," thereby reducing a potential storm's flood elevation level.

In conclusion, the calculations in the Pre-/Post-Development Analysis Table, coupled with the two Compensatory Storage methodologies, show that the proposed site development will not result in any increase in flood levels or stage, and therefore it complies with Section 177-8E(1)(i).

SECTION 177-8E(1)(j) – NEW CONSTRUCTION AND SUBSTANTIAL IMPROVEMENTS

All new construction and substantial improvements in special flood hazard areas (SFHAs) shall:

- [1] *Be designed and adequately anchored to prevent flotation, collapse, or lateral movement of the structure resulting from hydrodynamic and hydrostatic loads, including the effects of buoyancy [CFR 60.3(a)(3)(i)];*
- [2] *Be constructed with materials resistant to flood damage [CFR 60.3(a)(3)(ii)];*
- [3] *Be constructed by methods and practices that minimize flood damages [CFR 60.3(a)(3)(iii)];*
- [4] *Be constructed with electrical, heating, ventilation, plumbing, and air conditioning equipment and other service facilities that are designed and/or located to prevent water from entering or accumulating within the components during conditions of flooding [CFR 60.3(a)(3)(iv)].*

As previously mentioned, a retaining wall is proposed within the SFHA. This retaining wall is proposed as a segmental-block fill wall and measures no higher than 4.5 feet at its highest point. This wall is meant to assist with site grading operations and will support drive aisle and parking lot construction. A "Versa-Lok" or similar block product will be utilized in the construction of the wall.

The proposed wall is designed to withstand potential staging of the floodplain waters by providing a layer of separation stone behind the blocks themselves, as well as geosynthetic reinforcement extending the full width of excavation. A perforated HDPE pipe is also designed behind the lower blocks of the wall to aid in sub-surface drainage and, in the event of flooding, quicker discharges of water from behind the block system. The blocks themselves are made of concrete with large openings within (similar to structural cinderblocks) backfilled with gravel to aid in drainage, add structural capacity, and prevent buoyancy if completely submerged. Each block is also tied together to the blocks under and above it with HDPE pins, providing additional structural security. A detail of the above systems is shown below as Figure 5.

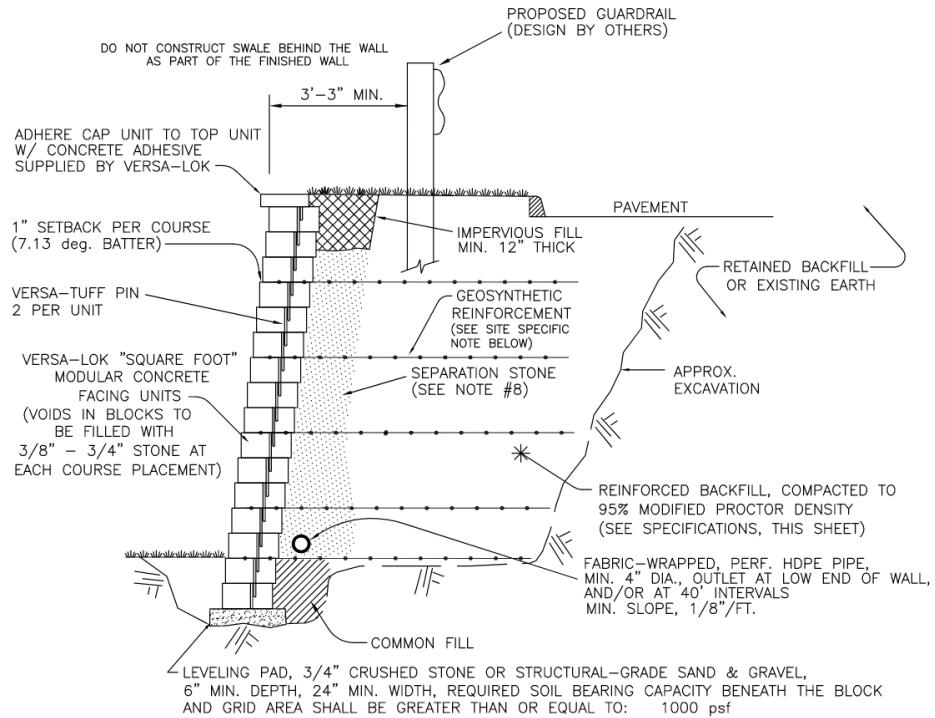


Figure 5 - Retaining Wall Design Cross-Section

The full design has been sealed and certified by a Connecticut-licensed engineer and can be found in the Site Plan package as sheets R1-R3.

These design considerations and the licensed retaining wall design demonstrate compliance with Section 177-8E(1)(j).

CONCLUSION

In summary, the proposed development complies with the applicable requirements of Section 177-8E for SFHA permit approval.

APPENDICES

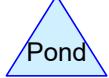
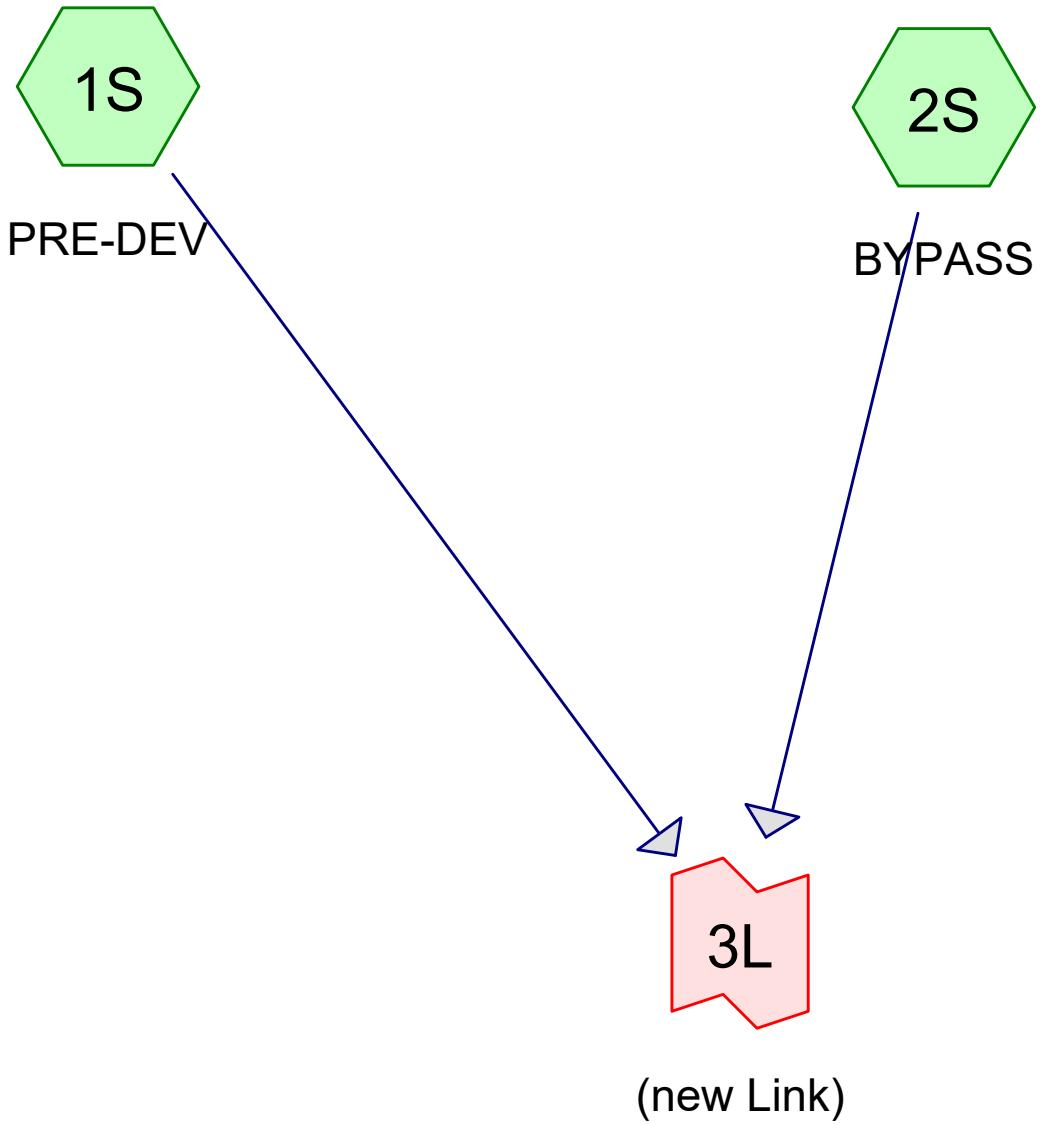
Appendix A: Pre-Development HydroCAD Report

Appendix B: Post-Development Drainage Plan

Appendix C: Post-Development HydroCAD Report

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APPENDIX A
PRE-DEVELOPMENT
HYDROCAD REPORT



Routing Diagram for 100260-01-001 HYDRO pre
Prepared by Bowman Consulting, Printed 4/17/2020
HydroCAD® 10.00-22 s/n 10434 © 2018 HydroCAD Software Solutions LLC

Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
0.380	80	>75% Grass cover, Good, HSG D (1S, 2S)
0.890	98	Paved parking, HSG D (1S)
1.270	93	TOTAL AREA

100260-01-001 HYDRO pre

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Page 3

Soil Listing (all nodes)

Area (acres)	Soil Group	Subcatchment Numbers
0.000	HSG A	
0.000	HSG B	
0.000	HSG C	
1.270	HSG D	1S, 2S
0.000	Other	
1.270		TOTAL AREA

100260-01-001 HYDRO pre

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Ground Covers (all nodes)

HSG-A (acres)	HSG-B (acres)	HSG-C (acres)	HSG-D (acres)	Other (acres)	Total (acres)	Ground Cover	Subcatchment Numbers
0.000	0.000	0.000	0.380	0.000	0.380	>75% Grass cover, Good	1S, 2S
0.000	0.000	0.000	0.890	0.000	0.890	Paved parking	1S
0.000	0.000	0.000	1.270	0.000	1.270	TOTAL AREA	

Time span=0.00-24.00 hrs, dt=0.01 hrs, 2401 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment1S: PRE-DEV

Runoff Area=1.210 ac 73.55% Impervious Runoff Depth>2.40"
Tc=5.0 min CN=93 Runoff=3.42 cfs 0.242 af

Subcatchment2S: BYPASS

Runoff Area=0.060 ac 0.00% Impervious Runoff Depth>1.36"
Tc=5.0 min CN=80 Runoff=0.10 cfs 0.007 af

Link 3L: (new Link)

Inflow=3.51 cfs 0.248 af
Primary=3.51 cfs 0.248 af

Total Runoff Area = 1.270 ac Runoff Volume = 0.248 af Average Runoff Depth = 2.35"
29.92% Pervious = 0.380 ac 70.08% Impervious = 0.890 ac

Summary for Subcatchment 1S: PRE-DEV

Runoff = 3.42 cfs @ 12.07 hrs, Volume= 0.242 af, Depth> 2.40"

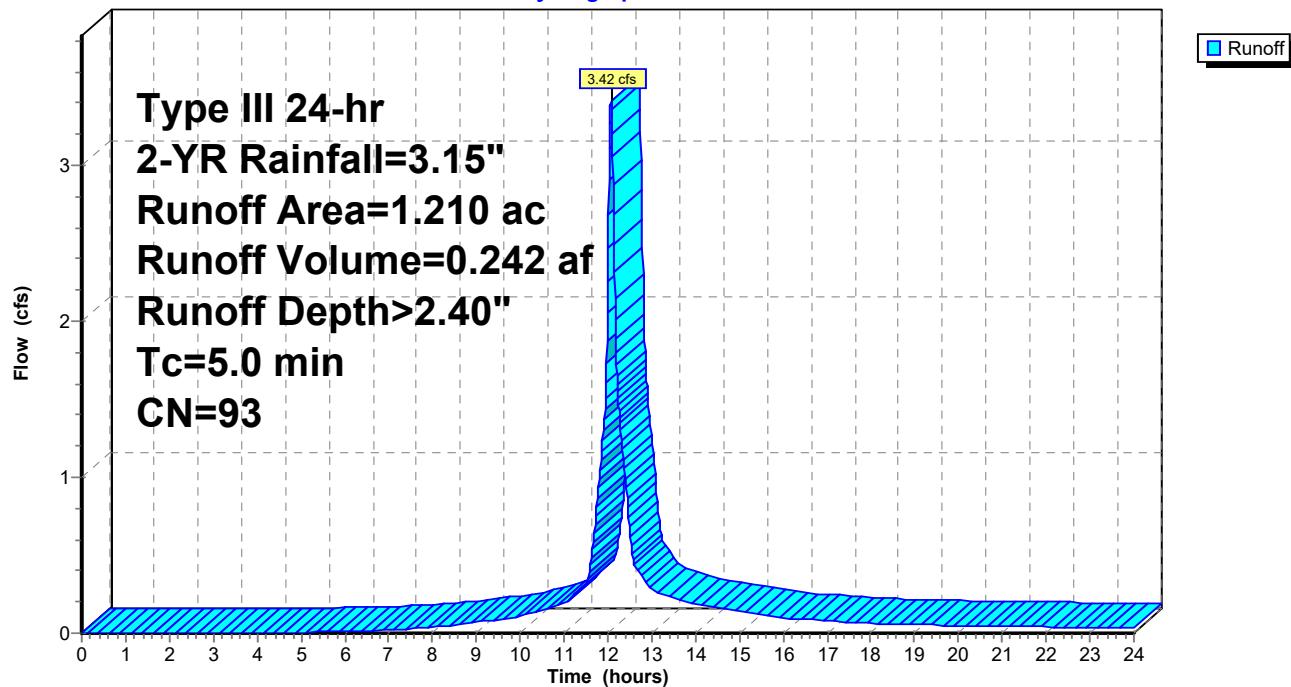
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-YR Rainfall=3.15"

Area (ac)	CN	Description
0.890	98	Paved parking, HSG D
0.320	80	>75% Grass cover, Good, HSG D
1.210	93	Weighted Average
0.320		26.45% Pervious Area
0.890		73.55% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

Subcatchment 1S: PRE-DEV

Hydrograph



Hydrograph for Subcatchment 1S: PRE-DEV

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
0.50	0.02	0.00	0.00
1.00	0.03	0.00	0.00
1.50	0.05	0.00	0.00
2.00	0.06	0.00	0.00
2.50	0.08	0.00	0.00
3.00	0.10	0.00	0.00
3.50	0.12	0.00	0.00
4.00	0.14	0.00	0.00
4.50	0.16	0.00	0.00
5.00	0.18	0.00	0.00
5.50	0.20	0.00	0.01
6.00	0.23	0.01	0.01
6.50	0.25	0.01	0.02
7.00	0.29	0.02	0.02
7.50	0.32	0.03	0.03
8.00	0.36	0.05	0.04
8.50	0.40	0.06	0.05
9.00	0.46	0.09	0.07
9.50	0.52	0.12	0.09
10.00	0.60	0.17	0.11
10.50	0.68	0.22	0.15
11.00	0.79	0.29	0.19
11.50	0.94	0.40	0.32
12.00	1.57	0.93	2.25
12.50	2.21	1.51	0.67
13.00	2.36	1.65	0.29
13.50	2.47	1.75	0.23
14.00	2.55	1.83	0.18
14.50	2.63	1.90	0.16
15.00	2.69	1.96	0.14
15.50	2.75	2.01	0.12
16.00	2.79	2.05	0.10
16.50	2.83	2.09	0.09
17.00	2.86	2.13	0.08
17.50	2.90	2.15	0.07
18.00	2.92	2.18	0.06
18.50	2.95	2.20	0.06
19.00	2.97	2.23	0.05
19.50	2.99	2.25	0.05
20.00	3.01	2.27	0.05
20.50	3.03	2.29	0.05
21.00	3.05	2.31	0.04
21.50	3.07	2.32	0.04
22.00	3.09	2.34	0.04
22.50	3.11	2.36	0.04
23.00	3.12	2.37	0.04
23.50	3.14	2.38	0.03
24.00	3.15	2.40	0.03

Summary for Subcatchment 2S: BYPASS

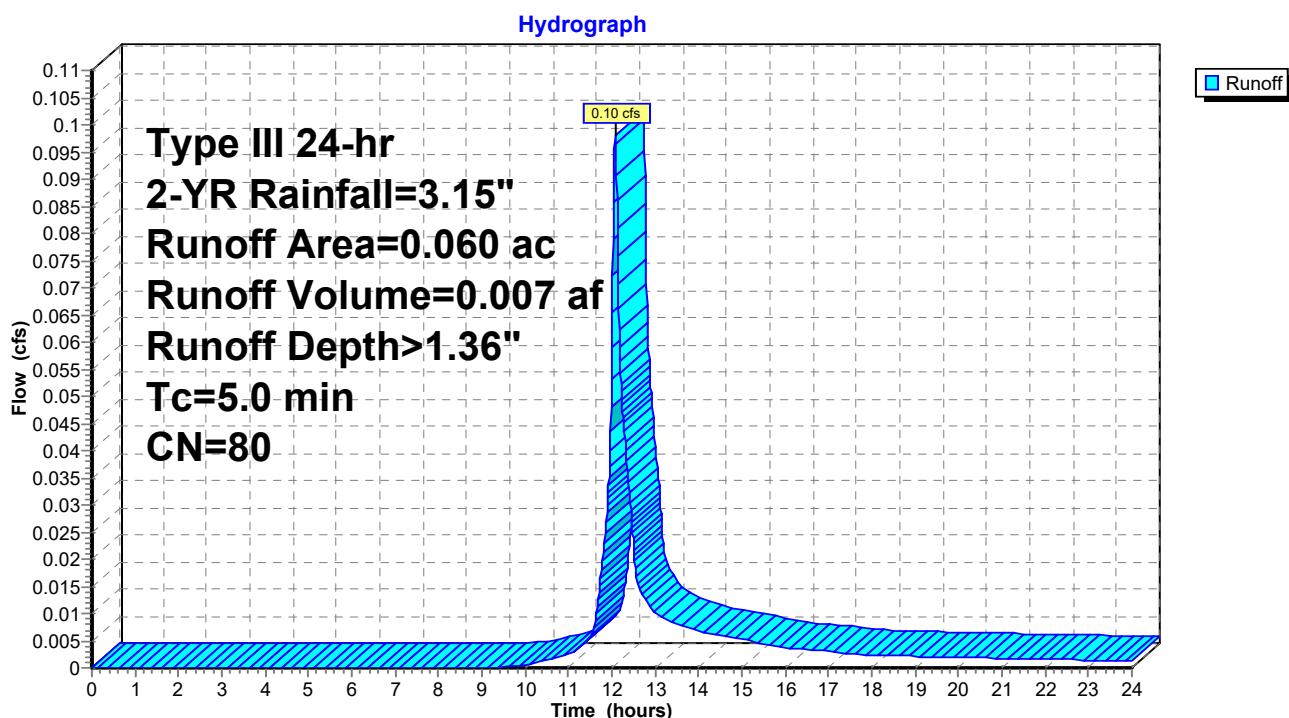
Runoff = 0.10 cfs @ 12.08 hrs, Volume= 0.007 af, Depth> 1.36"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-YR Rainfall=3.15"

Area (ac)	CN	Description
0.060	80	>75% Grass cover, Good, HSG D
0.060		100.00% Pervious Area

Tc	Length	Slope	Velocity	Capacity	Description
(min)	(feet)	(ft/ft)	(ft/sec)	(cfs)	
5.0	Direct Entry,				

Subcatchment 2S: BYPASS



Hydrograph for Subcatchment 2S: BYPASS

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
0.50	0.02	0.00	0.00
1.00	0.03	0.00	0.00
1.50	0.05	0.00	0.00
2.00	0.06	0.00	0.00
2.50	0.08	0.00	0.00
3.00	0.10	0.00	0.00
3.50	0.12	0.00	0.00
4.00	0.14	0.00	0.00
4.50	0.16	0.00	0.00
5.00	0.18	0.00	0.00
5.50	0.20	0.00	0.00
6.00	0.23	0.00	0.00
6.50	0.25	0.00	0.00
7.00	0.29	0.00	0.00
7.50	0.32	0.00	0.00
8.00	0.36	0.00	0.00
8.50	0.40	0.00	0.00
9.00	0.46	0.00	0.00
9.50	0.52	0.00	0.00
10.00	0.60	0.00	0.00
10.50	0.68	0.01	0.00
11.00	0.79	0.03	0.00
11.50	0.94	0.07	0.01
12.00	1.57	0.32	0.06
12.50	2.21	0.70	0.02
13.00	2.36	0.80	0.01
13.50	2.47	0.87	0.01
14.00	2.55	0.93	0.01
14.50	2.63	0.98	0.01
15.00	2.69	1.02	0.01
15.50	2.75	1.06	0.00
16.00	2.79	1.10	0.00
16.50	2.83	1.12	0.00
17.00	2.86	1.15	0.00
17.50	2.90	1.17	0.00
18.00	2.92	1.19	0.00
18.50	2.95	1.21	0.00
19.00	2.97	1.23	0.00
19.50	2.99	1.25	0.00
20.00	3.01	1.26	0.00
20.50	3.03	1.28	0.00
21.00	3.05	1.29	0.00
21.50	3.07	1.30	0.00
22.00	3.09	1.32	0.00
22.50	3.11	1.33	0.00
23.00	3.12	1.34	0.00
23.50	3.14	1.35	0.00
24.00	3.15	1.36	0.00

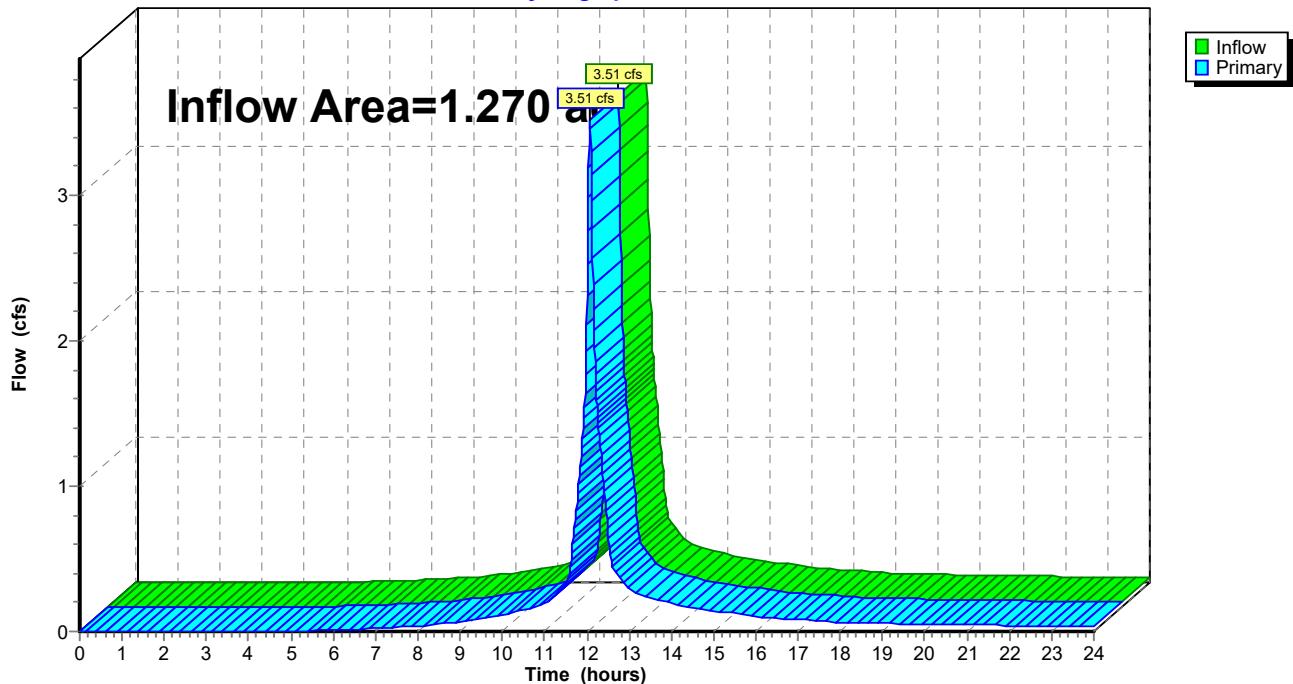
Summary for Link 3L: (new Link)

Inflow Area = 1.270 ac, 70.08% Impervious, Inflow Depth > 2.35" for 2-YR event
Inflow = 3.51 cfs @ 12.07 hrs, Volume= 0.248 af
Primary = 3.51 cfs @ 12.07 hrs, Volume= 0.248 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs

Link 3L: (new Link)

Hydrograph



Hydrograph for Link 3L: (new Link)

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00	0.00	0.00
0.50	0.00	0.00	0.00
1.00	0.00	0.00	0.00
1.50	0.00	0.00	0.00
2.00	0.00	0.00	0.00
2.50	0.00	0.00	0.00
3.00	0.00	0.00	0.00
3.50	0.00	0.00	0.00
4.00	0.00	0.00	0.00
4.50	0.00	0.00	0.00
5.00	0.00	0.00	0.00
5.50	0.01	0.00	0.01
6.00	0.01	0.00	0.01
6.50	0.02	0.00	0.02
7.00	0.02	0.00	0.02
7.50	0.03	0.00	0.03
8.00	0.04	0.00	0.04
8.50	0.05	0.00	0.05
9.00	0.07	0.00	0.07
9.50	0.09	0.00	0.09
10.00	0.11	0.00	0.11
10.50	0.15	0.00	0.15
11.00	0.19	0.00	0.19
11.50	0.33	0.00	0.33
12.00	2.31	0.00	2.31
12.50	0.69	0.00	0.69
13.00	0.30	0.00	0.30
13.50	0.24	0.00	0.24
14.00	0.19	0.00	0.19
14.50	0.17	0.00	0.17
15.00	0.15	0.00	0.15
15.50	0.12	0.00	0.12
16.00	0.10	0.00	0.10
16.50	0.09	0.00	0.09
17.00	0.08	0.00	0.08
17.50	0.07	0.00	0.07
18.00	0.06	0.00	0.06
18.50	0.06	0.00	0.06
19.00	0.06	0.00	0.06
19.50	0.05	0.00	0.05
20.00	0.05	0.00	0.05
20.50	0.05	0.00	0.05
21.00	0.05	0.00	0.05
21.50	0.04	0.00	0.04
22.00	0.04	0.00	0.04
22.50	0.04	0.00	0.04
23.00	0.04	0.00	0.04
23.50	0.04	0.00	0.04
24.00	0.03	0.00	0.03

Time span=0.00-24.00 hrs, dt=0.01 hrs, 2401 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment1S: PRE-DEV

Runoff Area=1.210 ac 73.55% Impervious Runoff Depth>3.38"
Tc=5.0 min CN=93 Runoff=4.74 cfs 0.341 af

Subcatchment2S: BYPASS

Runoff Area=0.060 ac 0.00% Impervious Runoff Depth>2.18"
Tc=5.0 min CN=80 Runoff=0.16 cfs 0.011 af

Link 3L: (new Link)

Inflow=4.89 cfs 0.352 af
Primary=4.89 cfs 0.352 af

**Total Runoff Area = 1.270 ac Runoff Volume = 0.352 af Average Runoff Depth = 3.33"
29.92% Pervious = 0.380 ac 70.08% Impervious = 0.890 ac**

Summary for Subcatchment 1S: PRE-DEV

Runoff = 4.74 cfs @ 12.07 hrs, Volume= 0.341 af, Depth> 3.38"

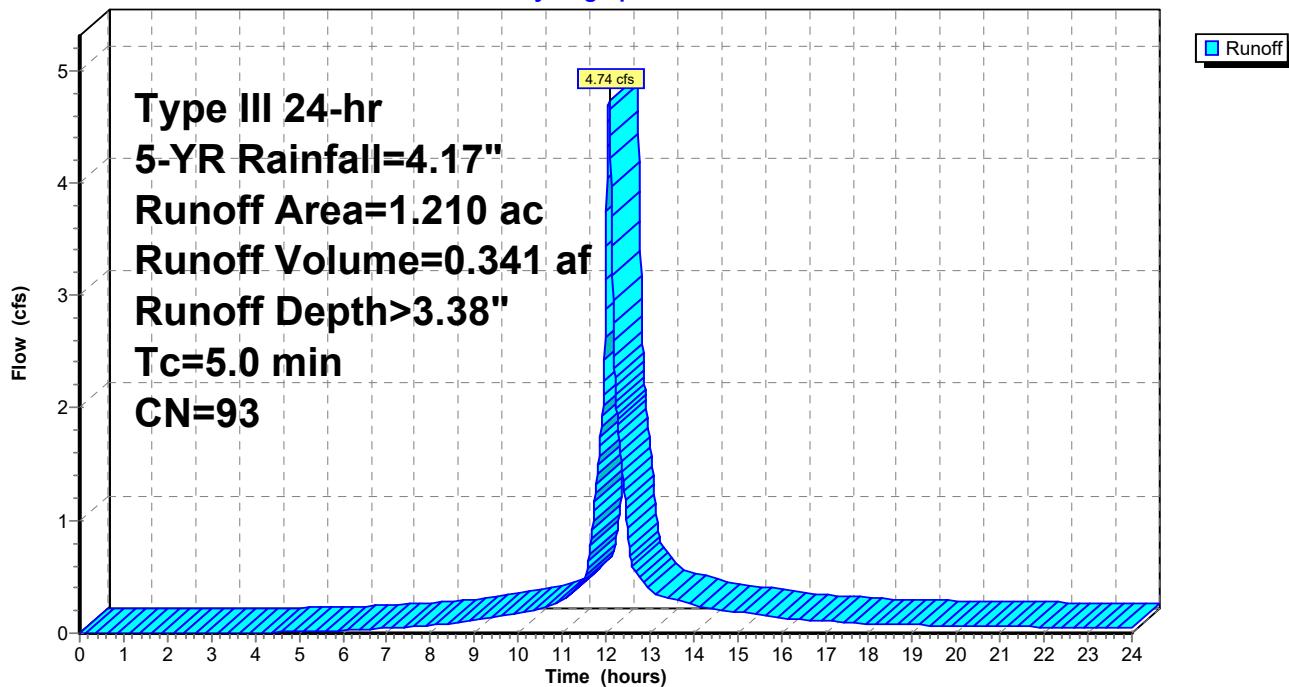
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 5-YR Rainfall=4.17"

Area (ac)	CN	Description
0.890	98	Paved parking, HSG D
0.320	80	>75% Grass cover, Good, HSG D
1.210	93	Weighted Average
0.320		26.45% Pervious Area
0.890		73.55% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

Subcatchment 1S: PRE-DEV

Hydrograph



100260-01-001 HYDRO pre

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Pre-Development
Type III 24-hr 5-YR Rainfall=4.17"
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Hydrograph for Subcatchment 1S: PRE-DEV

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
0.50	0.02	0.00	0.00
1.00	0.04	0.00	0.00
1.50	0.06	0.00	0.00
2.00	0.08	0.00	0.00
2.50	0.11	0.00	0.00
3.00	0.13	0.00	0.00
3.50	0.15	0.00	0.00
4.00	0.18	0.00	0.00
4.50	0.21	0.00	0.01
5.00	0.24	0.01	0.01
5.50	0.27	0.02	0.02
6.00	0.30	0.02	0.02
6.50	0.34	0.04	0.03
7.00	0.38	0.05	0.04
7.50	0.42	0.07	0.05
8.00	0.48	0.10	0.07
8.50	0.54	0.13	0.09
9.00	0.61	0.17	0.11
9.50	0.69	0.23	0.14
10.00	0.79	0.29	0.17
10.50	0.90	0.38	0.22
11.00	1.04	0.48	0.28
11.50	1.24	0.65	0.47
12.00	2.08	1.39	3.15
12.50	2.93	2.18	0.91
13.00	3.13	2.38	0.39
13.50	3.27	2.51	0.31
14.00	3.38	2.62	0.25
14.50	3.48	2.71	0.22
15.00	3.56	2.80	0.19
15.50	3.63	2.86	0.16
16.00	3.69	2.92	0.13
16.50	3.75	2.97	0.12
17.00	3.79	3.02	0.11
17.50	3.83	3.06	0.09
18.00	3.87	3.09	0.08
18.50	3.90	3.12	0.08
19.00	3.93	3.16	0.07
19.50	3.96	3.18	0.07
20.00	3.99	3.21	0.06
20.50	4.02	3.24	0.06
21.00	4.04	3.26	0.06
21.50	4.07	3.28	0.06
22.00	4.09	3.31	0.05
22.50	4.11	3.33	0.05
23.00	4.13	3.35	0.05
23.50	4.15	3.37	0.05
24.00	4.17	3.39	0.04

Summary for Subcatchment 2S: BYPASS

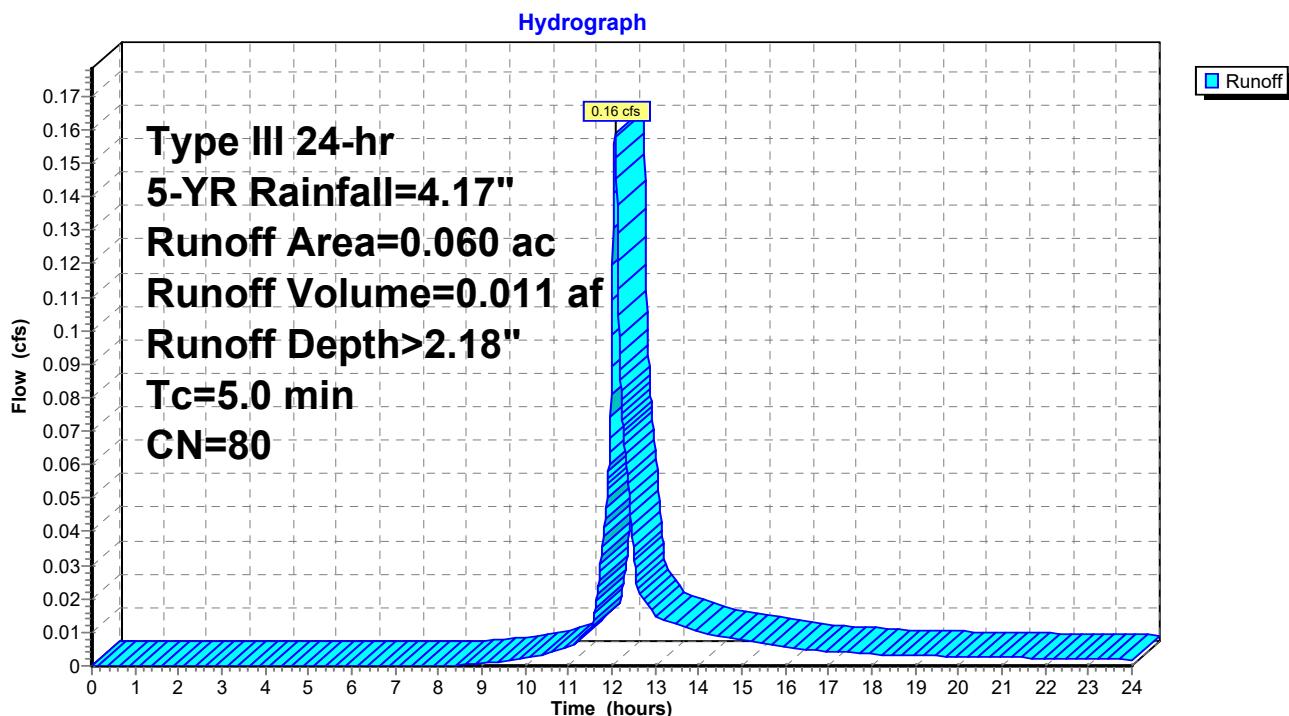
Runoff = 0.16 cfs @ 12.08 hrs, Volume= 0.011 af, Depth> 2.18"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 5-YR Rainfall=4.17"

Area (ac)	CN	Description
0.060	80	>75% Grass cover, Good, HSG D
0.060		100.00% Pervious Area

Tc	Length	Slope	Velocity	Capacity	Description
(min)	(feet)	(ft/ft)	(ft/sec)	(cfs)	
5.0	Direct Entry,				

Subcatchment 2S: BYPASS



Hydrograph for Subcatchment 2S: BYPASS

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
0.50	0.02	0.00	0.00
1.00	0.04	0.00	0.00
1.50	0.06	0.00	0.00
2.00	0.08	0.00	0.00
2.50	0.11	0.00	0.00
3.00	0.13	0.00	0.00
3.50	0.15	0.00	0.00
4.00	0.18	0.00	0.00
4.50	0.21	0.00	0.00
5.00	0.24	0.00	0.00
5.50	0.27	0.00	0.00
6.00	0.30	0.00	0.00
6.50	0.34	0.00	0.00
7.00	0.38	0.00	0.00
7.50	0.42	0.00	0.00
8.00	0.48	0.00	0.00
8.50	0.54	0.00	0.00
9.00	0.61	0.00	0.00
9.50	0.69	0.01	0.00
10.00	0.79	0.03	0.00
10.50	0.90	0.06	0.00
11.00	1.04	0.10	0.01
11.50	1.24	0.17	0.01
12.00	2.08	0.61	0.10
12.50	2.93	1.20	0.03
13.00	3.13	1.35	0.02
13.50	3.27	1.45	0.01
14.00	3.38	1.54	0.01
14.50	3.48	1.62	0.01
15.00	3.56	1.69	0.01
15.50	3.63	1.74	0.01
16.00	3.69	1.79	0.01
16.50	3.75	1.83	0.00
17.00	3.79	1.87	0.00
17.50	3.83	1.91	0.00
18.00	3.87	1.93	0.00
18.50	3.90	1.96	0.00
19.00	3.93	1.99	0.00
19.50	3.96	2.01	0.00
20.00	3.99	2.03	0.00
20.50	4.02	2.06	0.00
21.00	4.04	2.08	0.00
21.50	4.07	2.10	0.00
22.00	4.09	2.12	0.00
22.50	4.11	2.13	0.00
23.00	4.13	2.15	0.00
23.50	4.15	2.17	0.00
24.00	4.17	2.18	0.00

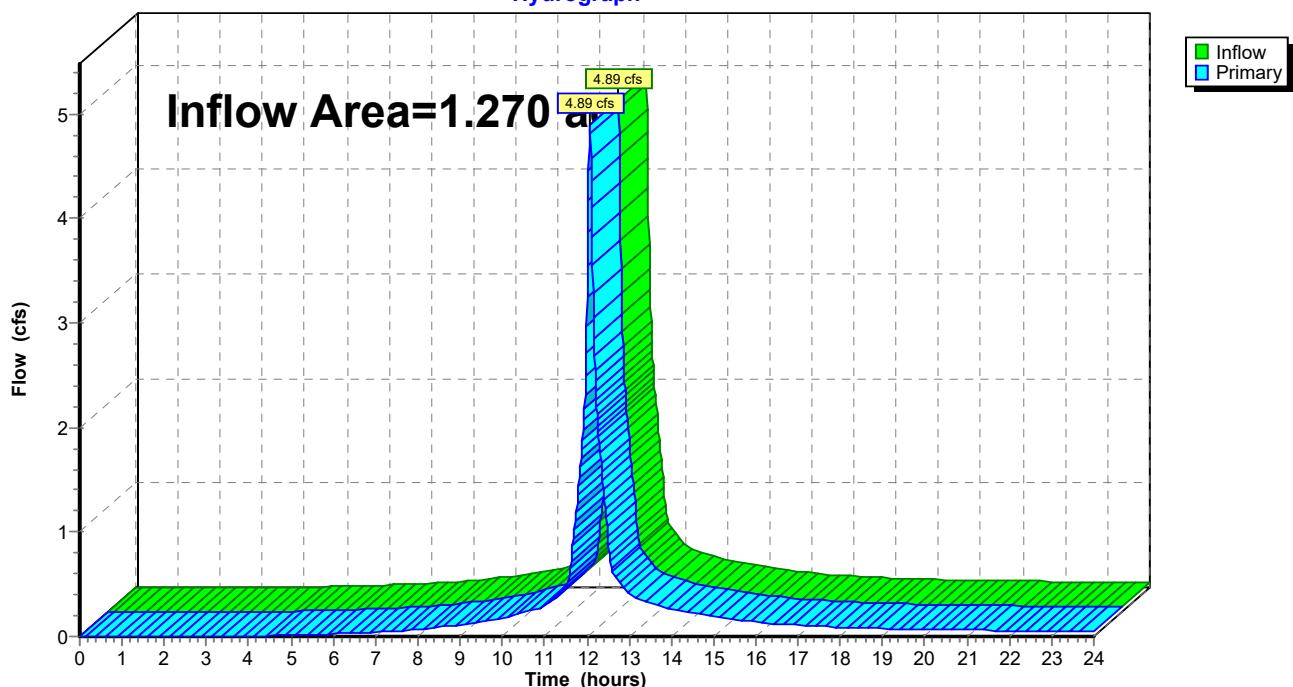
Summary for Link 3L: (new Link)

Inflow Area = 1.270 ac, 70.08% Impervious, Inflow Depth > 3.33" for 5-YR event
Inflow = 4.89 cfs @ 12.07 hrs, Volume= 0.352 af
Primary = 4.89 cfs @ 12.07 hrs, Volume= 0.352 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs

Link 3L: (new Link)

Hydrograph



Hydrograph for Link 3L: (new Link)

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00	0.00	0.00
0.50	0.00	0.00	0.00
1.00	0.00	0.00	0.00
1.50	0.00	0.00	0.00
2.00	0.00	0.00	0.00
2.50	0.00	0.00	0.00
3.00	0.00	0.00	0.00
3.50	0.00	0.00	0.00
4.00	0.00	0.00	0.00
4.50	0.01	0.00	0.01
5.00	0.01	0.00	0.01
5.50	0.02	0.00	0.02
6.00	0.02	0.00	0.02
6.50	0.03	0.00	0.03
7.00	0.04	0.00	0.04
7.50	0.05	0.00	0.05
8.00	0.07	0.00	0.07
8.50	0.09	0.00	0.09
9.00	0.11	0.00	0.11
9.50	0.14	0.00	0.14
10.00	0.17	0.00	0.17
10.50	0.23	0.00	0.23
11.00	0.29	0.00	0.29
11.50	0.48	0.00	0.48
12.00	3.25	0.00	3.25
12.50	0.94	0.00	0.94
13.00	0.41	0.00	0.41
13.50	0.32	0.00	0.32
14.00	0.26	0.00	0.26
14.50	0.23	0.00	0.23
15.00	0.20	0.00	0.20
15.50	0.17	0.00	0.17
16.00	0.14	0.00	0.14
16.50	0.12	0.00	0.12
17.00	0.11	0.00	0.11
17.50	0.10	0.00	0.10
18.00	0.08	0.00	0.08
18.50	0.08	0.00	0.08
19.00	0.08	0.00	0.08
19.50	0.07	0.00	0.07
20.00	0.07	0.00	0.07
20.50	0.06	0.00	0.06
21.00	0.06	0.00	0.06
21.50	0.06	0.00	0.06
22.00	0.06	0.00	0.06
22.50	0.05	0.00	0.05
23.00	0.05	0.00	0.05
23.50	0.05	0.00	0.05
24.00	0.04	0.00	0.04

Time span=0.00-24.00 hrs, dt=0.01 hrs, 2401 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment1S: PRE-DEV

Runoff Area=1.210 ac 73.55% Impervious Runoff Depth>4.21"
Tc=5.0 min CN=93 Runoff=5.83 cfs 0.425 af

Subcatchment2S: BYPASS

Runoff Area=0.060 ac 0.00% Impervious Runoff Depth>2.91"
Tc=5.0 min CN=80 Runoff=0.21 cfs 0.015 af

Link 3L: (new Link)

Inflow=6.04 cfs 0.439 af
Primary=6.04 cfs 0.439 af

Total Runoff Area = 1.270 ac Runoff Volume = 0.439 af Average Runoff Depth = 4.15"
29.92% Pervious = 0.380 ac 70.08% Impervious = 0.890 ac

Summary for Subcatchment 1S: PRE-DEV

Runoff = 5.83 cfs @ 12.07 hrs, Volume= 0.425 af, Depth> 4.21"

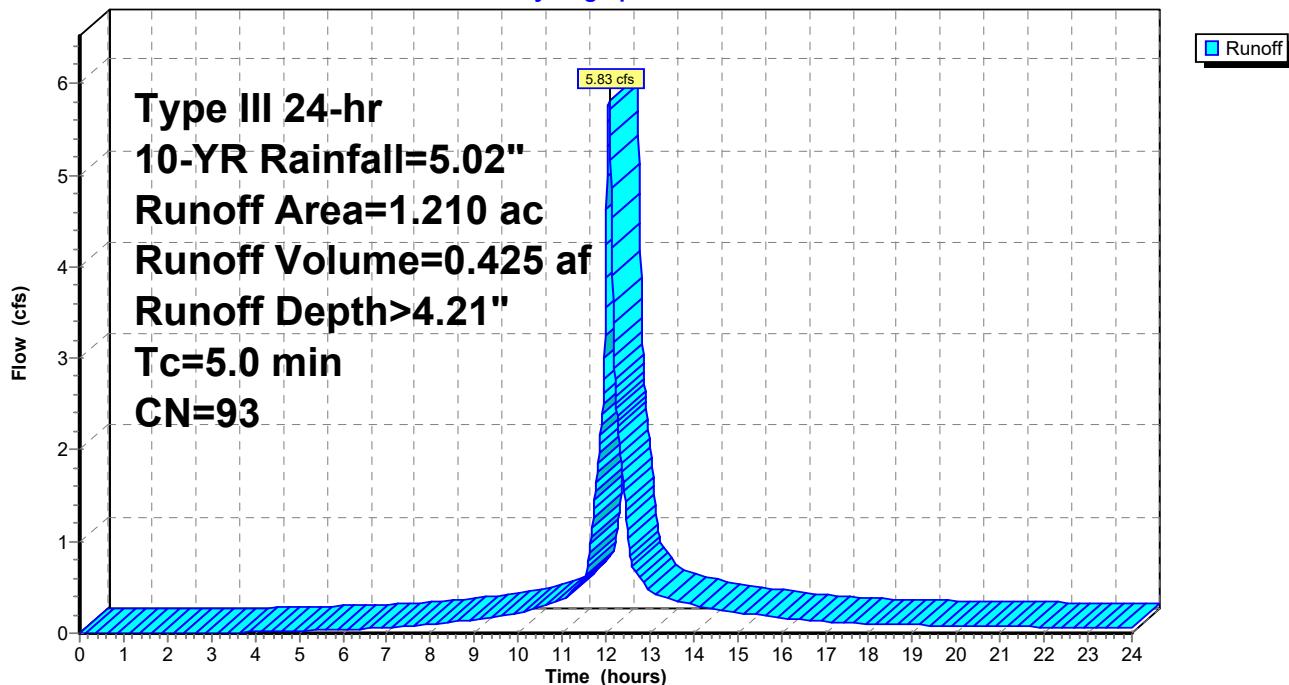
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-YR Rainfall=5.02"

Area (ac)	CN	Description
0.890	98	Paved parking, HSG D
0.320	80	>75% Grass cover, Good, HSG D
1.210	93	Weighted Average
0.320		26.45% Pervious Area
0.890		73.55% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

Subcatchment 1S: PRE-DEV

Hydrograph



Hydrograph for Subcatchment 1S: PRE-DEV

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
0.50	0.03	0.00	0.00
1.00	0.05	0.00	0.00
1.50	0.08	0.00	0.00
2.00	0.10	0.00	0.00
2.50	0.13	0.00	0.00
3.00	0.15	0.00	0.00
3.50	0.18	0.00	0.01
4.00	0.22	0.01	0.01
4.50	0.25	0.01	0.02
5.00	0.28	0.02	0.02
5.50	0.32	0.03	0.03
6.00	0.36	0.05	0.04
6.50	0.40	0.06	0.05
7.00	0.45	0.09	0.06
7.50	0.51	0.12	0.08
8.00	0.57	0.15	0.09
8.50	0.64	0.20	0.12
9.00	0.73	0.25	0.15
9.50	0.83	0.32	0.19
10.00	0.95	0.41	0.22
10.50	1.09	0.52	0.29
11.00	1.25	0.66	0.36
11.50	1.50	0.86	0.59
12.00	2.51	1.79	3.89
12.50	3.52	2.76	1.11
13.00	3.76	2.99	0.48
13.50	3.93	3.15	0.37
14.00	4.07	3.29	0.30
14.50	4.19	3.40	0.26
15.00	4.29	3.50	0.23
15.50	4.38	3.59	0.20
16.00	4.45	3.66	0.16
16.50	4.51	3.72	0.14
17.00	4.57	3.77	0.13
17.50	4.62	3.82	0.11
18.00	4.66	3.86	0.10
18.50	4.70	3.90	0.09
19.00	4.74	3.94	0.09
19.50	4.77	3.97	0.08
20.00	4.80	4.01	0.08
20.50	4.84	4.04	0.08
21.00	4.87	4.07	0.07
21.50	4.90	4.10	0.07
22.00	4.92	4.12	0.07
22.50	4.95	4.15	0.06
23.00	4.97	4.17	0.06
23.50	5.00	4.20	0.06
24.00	5.02	4.22	0.05

Summary for Subcatchment 2S: BYPASS

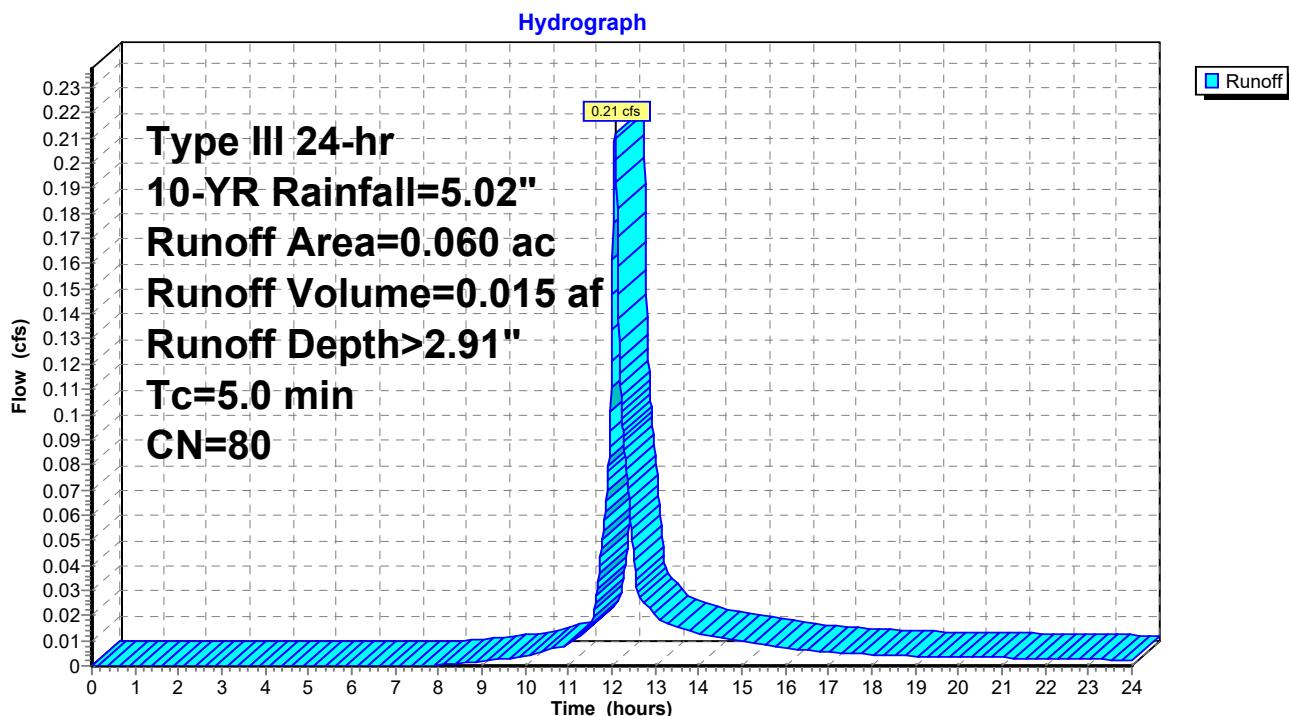
Runoff = 0.21 cfs @ 12.07 hrs, Volume= 0.015 af, Depth> 2.91"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-YR Rainfall=5.02"

Area (ac)	CN	Description
0.060	80	>75% Grass cover, Good, HSG D
0.060		100.00% Pervious Area

Tc	Length	Slope	Velocity	Capacity	Description
(min)	(feet)	(ft/ft)	(ft/sec)	(cfs)	
5.0	Direct Entry,				

Subcatchment 2S: BYPASS



Hydrograph for Subcatchment 2S: BYPASS

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
0.50	0.03	0.00	0.00
1.00	0.05	0.00	0.00
1.50	0.08	0.00	0.00
2.00	0.10	0.00	0.00
2.50	0.13	0.00	0.00
3.00	0.15	0.00	0.00
3.50	0.18	0.00	0.00
4.00	0.22	0.00	0.00
4.50	0.25	0.00	0.00
5.00	0.28	0.00	0.00
5.50	0.32	0.00	0.00
6.00	0.36	0.00	0.00
6.50	0.40	0.00	0.00
7.00	0.45	0.00	0.00
7.50	0.51	0.00	0.00
8.00	0.57	0.00	0.00
8.50	0.64	0.01	0.00
9.00	0.73	0.02	0.00
9.50	0.83	0.04	0.00
10.00	0.95	0.07	0.00
10.50	1.09	0.11	0.01
11.00	1.25	0.18	0.01
11.50	1.50	0.28	0.02
12.00	2.51	0.90	0.13
12.50	3.52	1.66	0.04
13.00	3.76	1.85	0.02
13.50	3.93	1.99	0.02
14.00	4.07	2.10	0.01
14.50	4.19	2.20	0.01
15.00	4.29	2.28	0.01
15.50	4.38	2.36	0.01
16.00	4.45	2.42	0.01
16.50	4.51	2.47	0.01
17.00	4.57	2.52	0.01
17.50	4.62	2.56	0.00
18.00	4.66	2.60	0.00
18.50	4.70	2.63	0.00
19.00	4.74	2.66	0.00
19.50	4.77	2.69	0.00
20.00	4.80	2.72	0.00
20.50	4.84	2.75	0.00
21.00	4.87	2.78	0.00
21.50	4.90	2.80	0.00
22.00	4.92	2.83	0.00
22.50	4.95	2.85	0.00
23.00	4.97	2.87	0.00
23.50	5.00	2.89	0.00
24.00	5.02	2.91	0.00

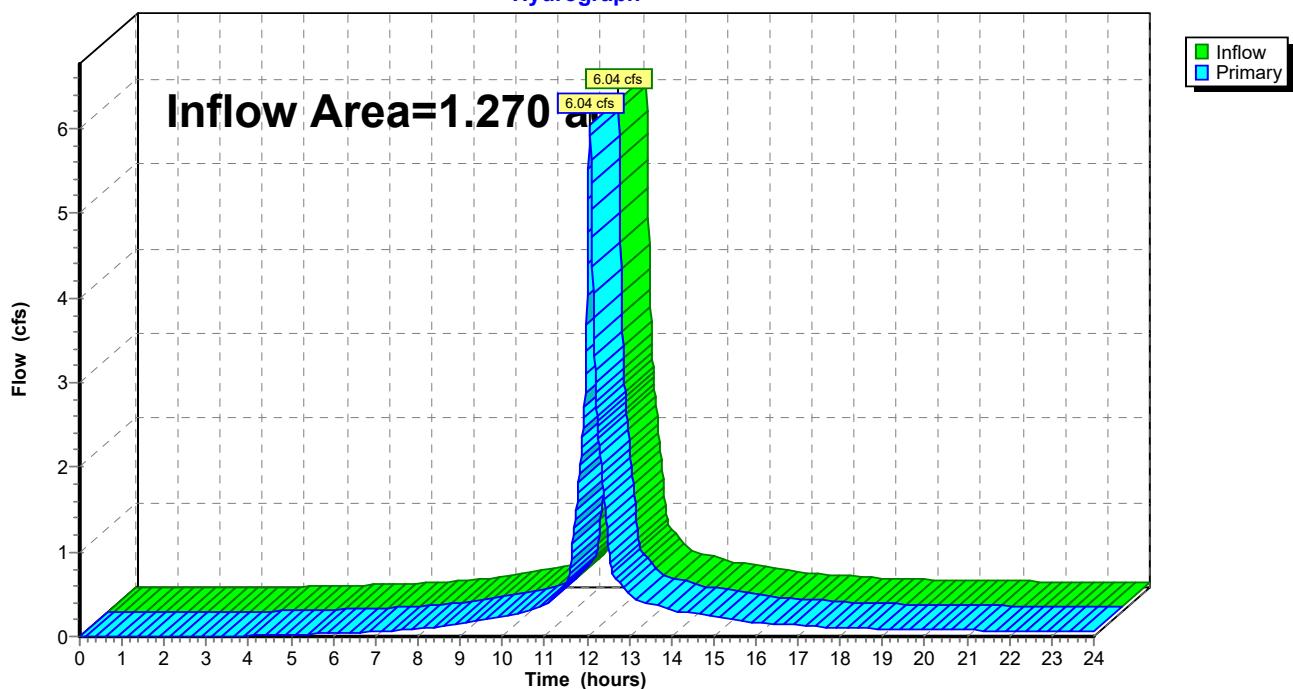
Summary for Link 3L: (new Link)

Inflow Area = 1.270 ac, 70.08% Impervious, Inflow Depth > 4.15" for 10-YR event
Inflow = 6.04 cfs @ 12.07 hrs, Volume= 0.439 af
Primary = 6.04 cfs @ 12.07 hrs, Volume= 0.439 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs

Link 3L: (new Link)

Hydrograph



100260-01-001 HYDRO pre

Prepared by Bowman Consulting

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Pre-Development
Type III 24-hr 10-YR Rainfall=5.02"
Printed 4/17/2020
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Hydrograph for Link 3L: (new Link)

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00	0.00	0.00
0.50	0.00	0.00	0.00
1.00	0.00	0.00	0.00
1.50	0.00	0.00	0.00
2.00	0.00	0.00	0.00
2.50	0.00	0.00	0.00
3.00	0.00	0.00	0.00
3.50	0.01	0.00	0.01
4.00	0.01	0.00	0.01
4.50	0.02	0.00	0.02
5.00	0.02	0.00	0.02
5.50	0.03	0.00	0.03
6.00	0.04	0.00	0.04
6.50	0.05	0.00	0.05
7.00	0.06	0.00	0.06
7.50	0.08	0.00	0.08
8.00	0.09	0.00	0.09
8.50	0.12	0.00	0.12
9.00	0.15	0.00	0.15
9.50	0.19	0.00	0.19
10.00	0.23	0.00	0.23
10.50	0.29	0.00	0.29
11.00	0.37	0.00	0.37
11.50	0.61	0.00	0.61
12.00	4.02	0.00	4.02
12.50	1.15	0.00	1.15
13.00	0.50	0.00	0.50
13.50	0.39	0.00	0.39
14.00	0.32	0.00	0.32
14.50	0.27	0.00	0.27
15.00	0.24	0.00	0.24
15.50	0.20	0.00	0.20
16.00	0.17	0.00	0.17
16.50	0.15	0.00	0.15
17.00	0.13	0.00	0.13
17.50	0.12	0.00	0.12
18.00	0.10	0.00	0.10
18.50	0.10	0.00	0.10
19.00	0.09	0.00	0.09
19.50	0.09	0.00	0.09
20.00	0.08	0.00	0.08
20.50	0.08	0.00	0.08
21.00	0.08	0.00	0.08
21.50	0.07	0.00	0.07
22.00	0.07	0.00	0.07
22.50	0.06	0.00	0.06
23.00	0.06	0.00	0.06
23.50	0.06	0.00	0.06
24.00	0.05	0.00	0.05

Time span=0.00-24.00 hrs, dt=0.01 hrs, 2401 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment1S: PRE-DEV

Runoff Area=1.210 ac 73.55% Impervious Runoff Depth>5.38"
Tc=5.0 min CN=93 Runoff=7.33 cfs 0.542 af

Subcatchment2S: BYPASS

Runoff Area=0.060 ac 0.00% Impervious Runoff Depth>3.96"
Tc=5.0 min CN=80 Runoff=0.29 cfs 0.020 af

Link 3L: (new Link)

Inflow=7.61 cfs 0.562 af
Primary=7.61 cfs 0.562 af

Total Runoff Area = 1.270 ac Runoff Volume = 0.562 af Average Runoff Depth = 5.31"
29.92% Pervious = 0.380 ac 70.08% Impervious = 0.890 ac

Summary for Subcatchment 1S: PRE-DEV

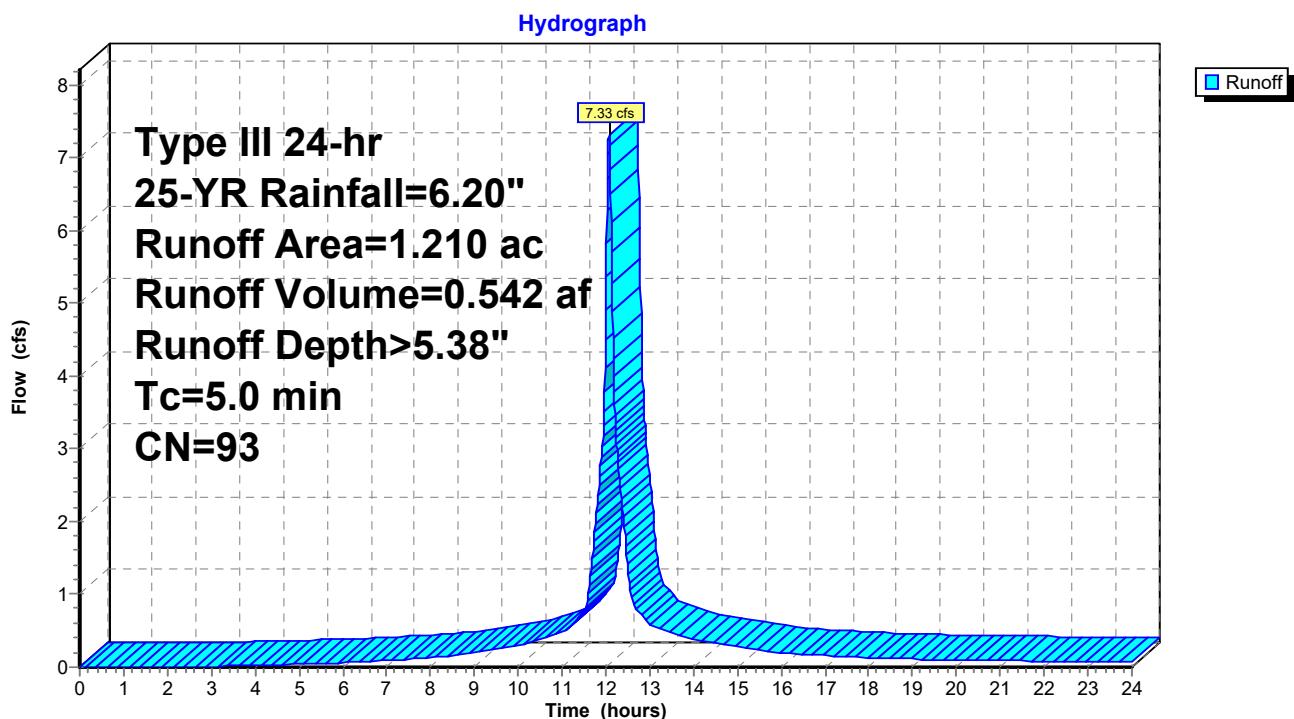
Runoff = 7.33 cfs @ 12.07 hrs, Volume= 0.542 af, Depth> 5.38"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-YR Rainfall=6.20"

Area (ac)	CN	Description
0.890	98	Paved parking, HSG D
0.320	80	>75% Grass cover, Good, HSG D
1.210	93	Weighted Average
0.320		26.45% Pervious Area
0.890		73.55% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

Subcatchment 1S: PRE-DEV



Hydrograph for Subcatchment 1S: PRE-DEV

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
0.50	0.03	0.00	0.00
1.00	0.06	0.00	0.00
1.50	0.09	0.00	0.00
2.00	0.12	0.00	0.00
2.50	0.16	0.00	0.00
3.00	0.19	0.00	0.01
3.50	0.23	0.01	0.02
4.00	0.27	0.02	0.02
4.50	0.31	0.03	0.03
5.00	0.35	0.04	0.04
5.50	0.40	0.06	0.05
6.00	0.45	0.08	0.06
6.50	0.50	0.11	0.07
7.00	0.56	0.14	0.09
7.50	0.63	0.19	0.11
8.00	0.71	0.24	0.13
8.50	0.80	0.30	0.16
9.00	0.90	0.38	0.21
9.50	1.03	0.47	0.25
10.00	1.17	0.59	0.30
10.50	1.34	0.73	0.38
11.00	1.55	0.91	0.47
11.50	1.85	1.18	0.76
12.00	3.10	2.35	4.91
12.50	4.35	3.56	1.38
13.00	4.65	3.85	0.59
13.50	4.86	4.06	0.47
14.00	5.03	4.23	0.38
14.50	5.17	4.37	0.33
15.00	5.30	4.49	0.29
15.50	5.40	4.59	0.24
16.00	5.49	4.68	0.20
16.50	5.57	4.76	0.18
17.00	5.64	4.83	0.16
17.50	5.70	4.89	0.14
18.00	5.75	4.94	0.12
18.50	5.80	4.99	0.11
19.00	5.85	5.03	0.11
19.50	5.89	5.08	0.10
20.00	5.93	5.12	0.10
20.50	5.97	5.16	0.09
21.00	6.01	5.19	0.09
21.50	6.05	5.23	0.09
22.00	6.08	5.26	0.08
22.50	6.11	5.29	0.08
23.00	6.14	5.32	0.07
23.50	6.17	5.35	0.07
24.00	6.20	5.38	0.06

Summary for Subcatchment 2S: BYPASS

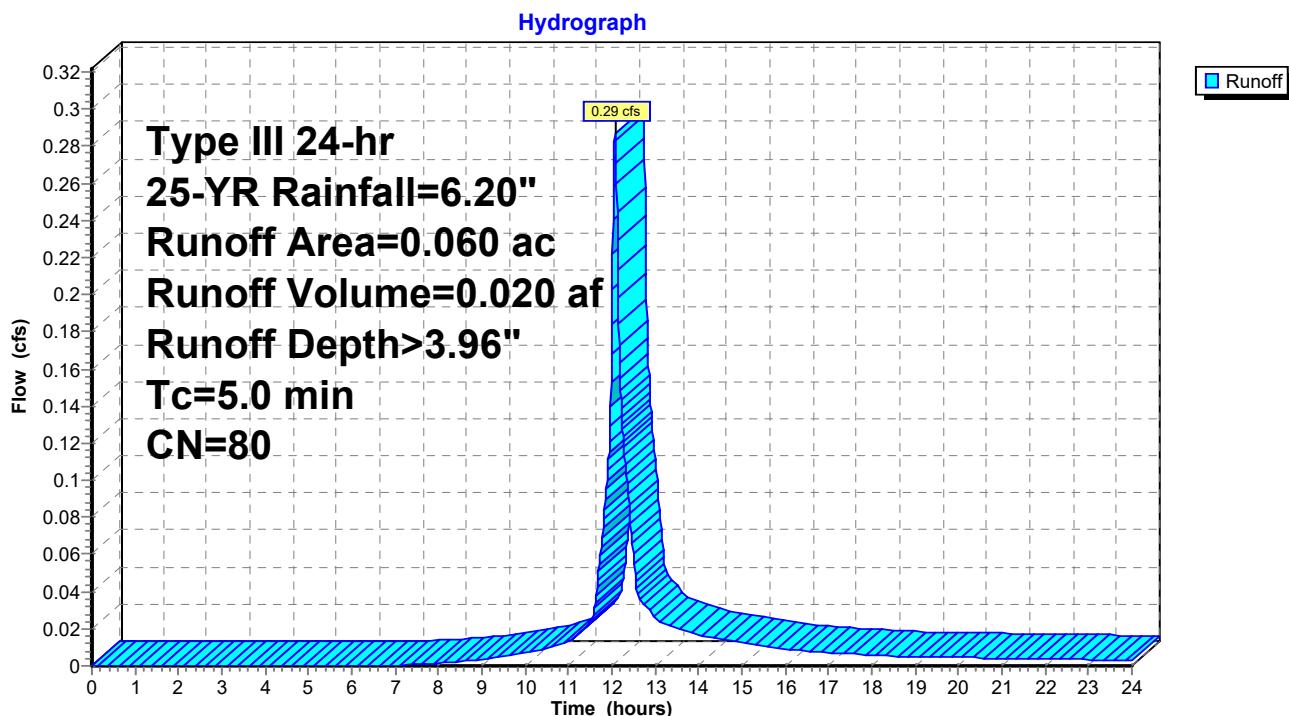
Runoff = 0.29 cfs @ 12.07 hrs, Volume= 0.020 af, Depth> 3.96"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-YR Rainfall=6.20"

Area (ac)	CN	Description
0.060	80	>75% Grass cover, Good, HSG D
0.060		100.00% Pervious Area

Tc	Length	Slope	Velocity	Capacity	Description
(min)	(feet)	(ft/ft)	(ft/sec)	(cfs)	
5.0				0.29	Direct Entry,

Subcatchment 2S: BYPASS



Hydrograph for Subcatchment 2S: BYPASS

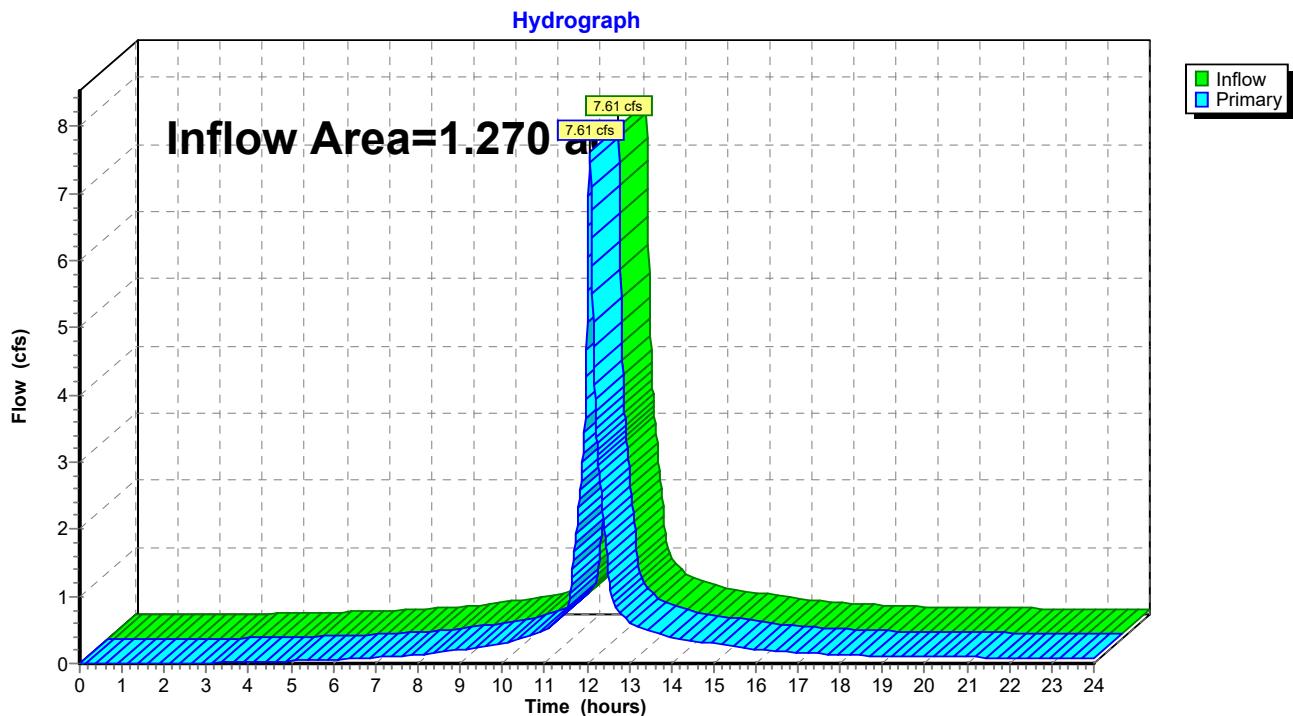
Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
0.50	0.03	0.00	0.00
1.00	0.06	0.00	0.00
1.50	0.09	0.00	0.00
2.00	0.12	0.00	0.00
2.50	0.16	0.00	0.00
3.00	0.19	0.00	0.00
3.50	0.23	0.00	0.00
4.00	0.27	0.00	0.00
4.50	0.31	0.00	0.00
5.00	0.35	0.00	0.00
5.50	0.40	0.00	0.00
6.00	0.45	0.00	0.00
6.50	0.50	0.00	0.00
7.00	0.56	0.00	0.00
7.50	0.63	0.01	0.00
8.00	0.71	0.02	0.00
8.50	0.80	0.03	0.00
9.00	0.90	0.06	0.00
9.50	1.03	0.09	0.00
10.00	1.17	0.14	0.01
10.50	1.34	0.21	0.01
11.00	1.55	0.31	0.01
11.50	1.85	0.47	0.02
12.00	3.10	1.33	0.18
12.50	4.35	2.34	0.06
13.00	4.65	2.59	0.03
13.50	4.86	2.77	0.02
14.00	5.03	2.92	0.02
14.50	5.17	3.04	0.01
15.00	5.30	3.15	0.01
15.50	5.40	3.25	0.01
16.00	5.49	3.33	0.01
16.50	5.57	3.40	0.01
17.00	5.64	3.46	0.01
17.50	5.70	3.51	0.01
18.00	5.75	3.56	0.01
18.50	5.80	3.60	0.01
19.00	5.85	3.64	0.00
19.50	5.89	3.68	0.00
20.00	5.93	3.72	0.00
20.50	5.97	3.76	0.00
21.00	6.01	3.79	0.00
21.50	6.05	3.82	0.00
22.00	6.08	3.85	0.00
22.50	6.11	3.88	0.00
23.00	6.14	3.91	0.00
23.50	6.17	3.94	0.00
24.00	6.20	3.96	0.00

Summary for Link 3L: (new Link)

Inflow Area = 1.270 ac, 70.08% Impervious, Inflow Depth > 5.31" for 25-YR event
Inflow = 7.61 cfs @ 12.07 hrs, Volume= 0.562 af
Primary = 7.61 cfs @ 12.07 hrs, Volume= 0.562 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs

Link 3L: (new Link)



100260-01-001 HYDRO pre

Prepared by Bowman Consulting

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Pre-Development
Type III 24-hr 25-YR Rainfall=6.20"
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Hydrograph for Link 3L: (new Link)

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00	0.00	0.00
0.50	0.00	0.00	0.00
1.00	0.00	0.00	0.00
1.50	0.00	0.00	0.00
2.00	0.00	0.00	0.00
2.50	0.00	0.00	0.00
3.00	0.01	0.00	0.01
3.50	0.02	0.00	0.02
4.00	0.02	0.00	0.02
4.50	0.03	0.00	0.03
5.00	0.04	0.00	0.04
5.50	0.05	0.00	0.05
6.00	0.06	0.00	0.06
6.50	0.07	0.00	0.07
7.00	0.09	0.00	0.09
7.50	0.11	0.00	0.11
8.00	0.13	0.00	0.13
8.50	0.17	0.00	0.17
9.00	0.21	0.00	0.21
9.50	0.26	0.00	0.26
10.00	0.30	0.00	0.30
10.50	0.39	0.00	0.39
11.00	0.48	0.00	0.48
11.50	0.79	0.00	0.79
12.00	5.09	0.00	5.09
12.50	1.44	0.00	1.44
13.00	0.62	0.00	0.62
13.50	0.49	0.00	0.49
14.00	0.39	0.00	0.39
14.50	0.34	0.00	0.34
15.00	0.30	0.00	0.30
15.50	0.25	0.00	0.25
16.00	0.21	0.00	0.21
16.50	0.19	0.00	0.19
17.00	0.17	0.00	0.17
17.50	0.15	0.00	0.15
18.00	0.13	0.00	0.13
18.50	0.12	0.00	0.12
19.00	0.11	0.00	0.11
19.50	0.11	0.00	0.11
20.00	0.10	0.00	0.10
20.50	0.10	0.00	0.10
21.00	0.09	0.00	0.09
21.50	0.09	0.00	0.09
22.00	0.08	0.00	0.08
22.50	0.08	0.00	0.08
23.00	0.08	0.00	0.08
23.50	0.07	0.00	0.07
24.00	0.07	0.00	0.07

Time span=0.00-24.00 hrs, dt=0.01 hrs, 2401 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment1S: PRE-DEV

Runoff Area=1.210 ac 73.55% Impervious Runoff Depth>6.22"
Tc=5.0 min CN=93 Runoff=8.40 cfs 0.627 af

Subcatchment2S: BYPASS

Runoff Area=0.060 ac 0.00% Impervious Runoff Depth>4.74"
Tc=5.0 min CN=80 Runoff=0.34 cfs 0.024 af

Link 3L: (new Link)

Inflow=8.75 cfs 0.651 af
Primary=8.75 cfs 0.651 af

Total Runoff Area = 1.270 ac Runoff Volume = 0.651 af Average Runoff Depth = 6.15"
29.92% Pervious = 0.380 ac 70.08% Impervious = 0.890 ac

Summary for Subcatchment 1S: PRE-DEV

Runoff = 8.40 cfs @ 12.07 hrs, Volume= 0.627 af, Depth> 6.22"

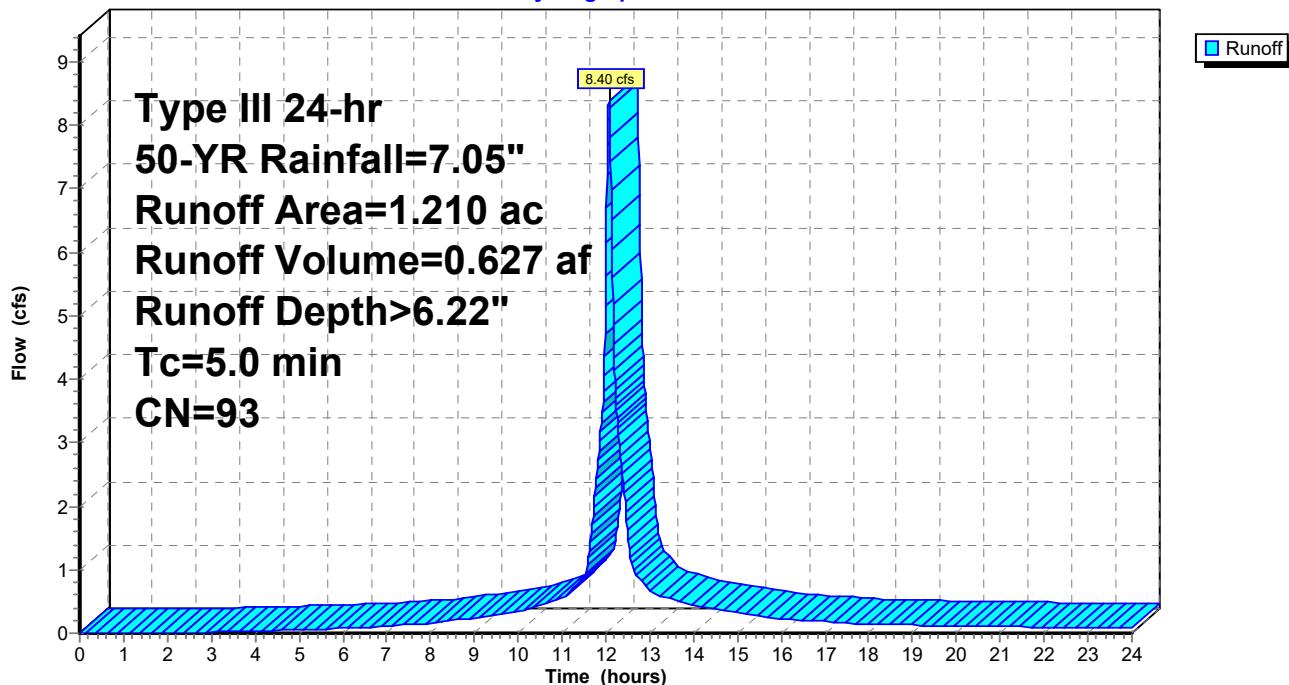
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 50-YR Rainfall=7.05"

Area (ac)	CN	Description
0.890	98	Paved parking, HSG D
0.320	80	>75% Grass cover, Good, HSG D
1.210	93	Weighted Average
0.320		26.45% Pervious Area
0.890		73.55% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

Subcatchment 1S: PRE-DEV

Hydrograph



Hydrograph for Subcatchment 1S: PRE-DEV

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
0.50	0.04	0.00	0.00
1.00	0.07	0.00	0.00
1.50	0.11	0.00	0.00
2.00	0.14	0.00	0.00
2.50	0.18	0.00	0.00
3.00	0.22	0.01	0.01
3.50	0.26	0.01	0.02
4.00	0.30	0.03	0.03
4.50	0.35	0.04	0.04
5.00	0.40	0.06	0.05
5.50	0.45	0.09	0.06
6.00	0.51	0.11	0.07
6.50	0.57	0.15	0.09
7.00	0.64	0.19	0.11
7.50	0.72	0.24	0.13
8.00	0.80	0.30	0.16
8.50	0.91	0.38	0.20
9.00	1.03	0.47	0.25
9.50	1.17	0.59	0.30
10.00	1.33	0.72	0.35
10.50	1.53	0.89	0.44
11.00	1.76	1.10	0.55
11.50	2.10	1.41	0.88
12.00	3.52	2.76	5.64
12.50	4.95	4.15	1.58
13.00	5.29	4.48	0.68
13.50	5.52	4.71	0.53
14.00	5.72	4.90	0.43
14.50	5.88	5.06	0.37
15.00	6.02	5.20	0.33
15.50	6.14	5.33	0.28
16.00	6.25	5.43	0.23
16.50	6.33	5.51	0.20
17.00	6.41	5.59	0.18
17.50	6.48	5.66	0.16
18.00	6.54	5.72	0.14
18.50	6.60	5.77	0.13
19.00	6.65	5.82	0.12
19.50	6.70	5.87	0.12
20.00	6.75	5.92	0.11
20.50	6.79	5.97	0.11
21.00	6.83	6.01	0.10
21.50	6.88	6.05	0.10
22.00	6.91	6.09	0.09
22.50	6.95	6.12	0.09
23.00	6.99	6.16	0.08
23.50	7.02	6.19	0.08
24.00	7.05	6.22	0.07

Summary for Subcatchment 2S: BYPASS

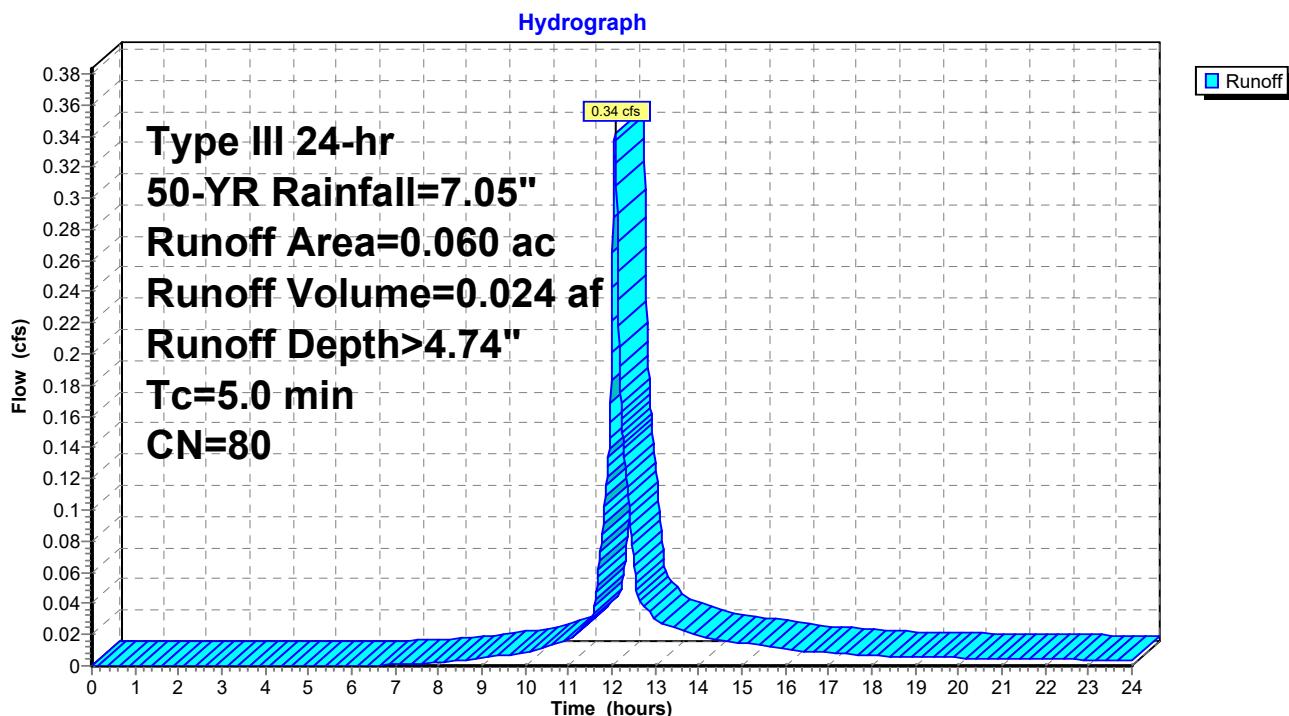
Runoff = 0.34 cfs @ 12.07 hrs, Volume= 0.024 af, Depth> 4.74"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 50-YR Rainfall=7.05"

Area (ac)	CN	Description
0.060	80	>75% Grass cover, Good, HSG D
0.060		100.00% Pervious Area

Tc	Length	Slope	Velocity	Capacity	Description
(min)	(feet)	(ft/ft)	(ft/sec)	(cfs)	
5.0	Direct Entry,				

Subcatchment 2S: BYPASS



Hydrograph for Subcatchment 2S: BYPASS

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
0.50	0.04	0.00	0.00
1.00	0.07	0.00	0.00
1.50	0.11	0.00	0.00
2.00	0.14	0.00	0.00
2.50	0.18	0.00	0.00
3.00	0.22	0.00	0.00
3.50	0.26	0.00	0.00
4.00	0.30	0.00	0.00
4.50	0.35	0.00	0.00
5.00	0.40	0.00	0.00
5.50	0.45	0.00	0.00
6.00	0.51	0.00	0.00
6.50	0.57	0.00	0.00
7.00	0.64	0.01	0.00
7.50	0.72	0.02	0.00
8.00	0.80	0.03	0.00
8.50	0.91	0.06	0.00
9.00	1.03	0.09	0.00
9.50	1.17	0.14	0.01
10.00	1.33	0.21	0.01
10.50	1.53	0.30	0.01
11.00	1.76	0.42	0.02
11.50	2.10	0.62	0.03
12.00	3.52	1.66	0.22
12.50	4.95	2.85	0.07
13.00	5.29	3.15	0.03
13.50	5.52	3.35	0.02
14.00	5.72	3.53	0.02
14.50	5.88	3.67	0.02
15.00	6.02	3.80	0.01
15.50	6.14	3.91	0.01
16.00	6.25	4.00	0.01
16.50	6.33	4.08	0.01
17.00	6.41	4.15	0.01
17.50	6.48	4.22	0.01
18.00	6.54	4.27	0.01
18.50	6.60	4.32	0.01
19.00	6.65	4.37	0.01
19.50	6.70	4.42	0.01
20.00	6.75	4.46	0.01
20.50	6.79	4.50	0.00
21.00	6.83	4.54	0.00
21.50	6.88	4.58	0.00
22.00	6.91	4.62	0.00
22.50	6.95	4.65	0.00
23.00	6.99	4.68	0.00
23.50	7.02	4.71	0.00
24.00	7.05	4.74	0.00

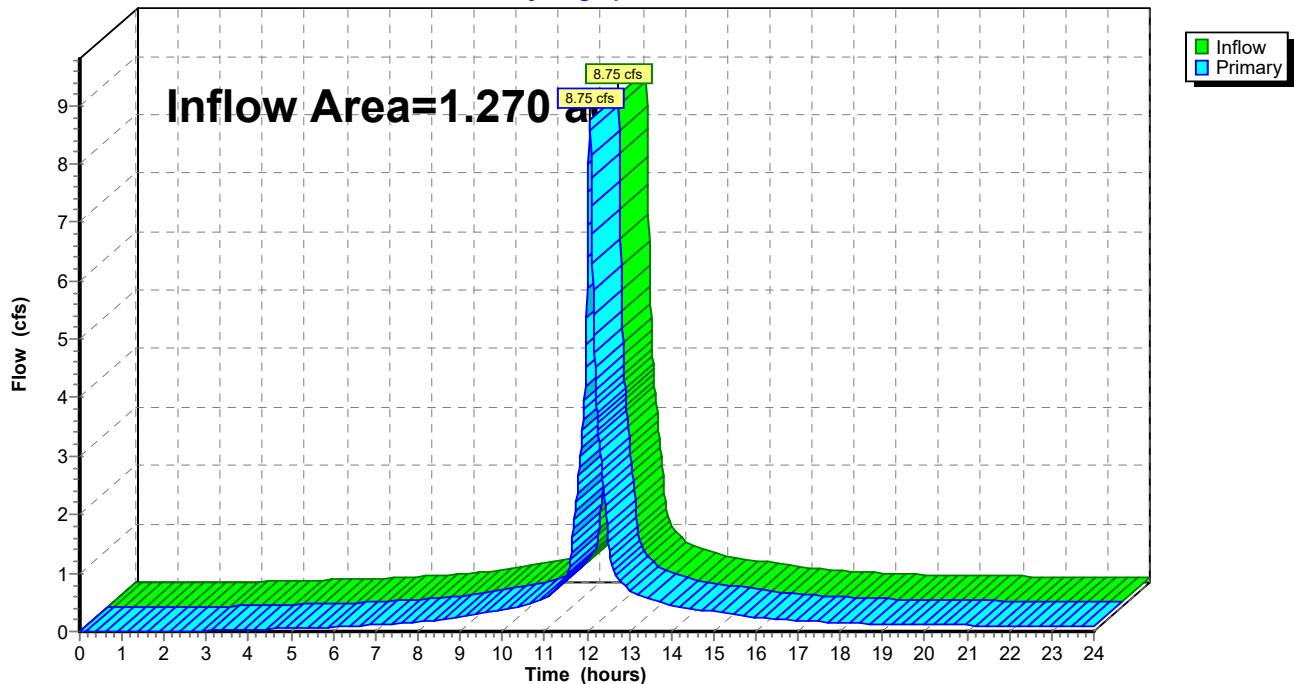
Summary for Link 3L: (new Link)

Inflow Area = 1.270 ac, 70.08% Impervious, Inflow Depth > 6.15" for 50-YR event
Inflow = 8.75 cfs @ 12.07 hrs, Volume= 0.651 af
Primary = 8.75 cfs @ 12.07 hrs, Volume= 0.651 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs

Link 3L: (new Link)

Hydrograph



Hydrograph for Link 3L: (new Link)

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00	0.00	0.00
0.50	0.00	0.00	0.00
1.00	0.00	0.00	0.00
1.50	0.00	0.00	0.00
2.00	0.00	0.00	0.00
2.50	0.00	0.00	0.00
3.00	0.01	0.00	0.01
3.50	0.02	0.00	0.02
4.00	0.03	0.00	0.03
4.50	0.04	0.00	0.04
5.00	0.05	0.00	0.05
5.50	0.06	0.00	0.06
6.00	0.07	0.00	0.07
6.50	0.09	0.00	0.09
7.00	0.11	0.00	0.11
7.50	0.13	0.00	0.13
8.00	0.16	0.00	0.16
8.50	0.20	0.00	0.20
9.00	0.25	0.00	0.25
9.50	0.30	0.00	0.30
10.00	0.36	0.00	0.36
10.50	0.46	0.00	0.46
11.00	0.56	0.00	0.56
11.50	0.91	0.00	0.91
12.00	5.86	0.00	5.86
12.50	1.65	0.00	1.65
13.00	0.71	0.00	0.71
13.50	0.56	0.00	0.56
14.00	0.45	0.00	0.45
14.50	0.39	0.00	0.39
15.00	0.34	0.00	0.34
15.50	0.29	0.00	0.29
16.00	0.24	0.00	0.24
16.50	0.21	0.00	0.21
17.00	0.19	0.00	0.19
17.50	0.17	0.00	0.17
18.00	0.15	0.00	0.15
18.50	0.14	0.00	0.14
19.00	0.13	0.00	0.13
19.50	0.12	0.00	0.12
20.00	0.12	0.00	0.12
20.50	0.11	0.00	0.11
21.00	0.11	0.00	0.11
21.50	0.10	0.00	0.10
22.00	0.10	0.00	0.10
22.50	0.09	0.00	0.09
23.00	0.09	0.00	0.09
23.50	0.08	0.00	0.08
24.00	0.08	0.00	0.08

Time span=0.00-24.00 hrs, dt=0.01 hrs, 2401 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment1S: PRE-DEV

Runoff Area=1.210 ac 73.55% Impervious Runoff Depth>7.16"
Tc=5.0 min CN=93 Runoff=9.60 cfs 0.722 af

Subcatchment2S: BYPASS

Runoff Area=0.060 ac 0.00% Impervious Runoff Depth>5.62"
Tc=5.0 min CN=80 Runoff=0.40 cfs 0.028 af

Link 3L: (new Link)

Inflow=10.00 cfs 0.750 af
Primary=10.00 cfs 0.750 af

Total Runoff Area = 1.270 ac Runoff Volume = 0.750 af Average Runoff Depth = 7.09"
29.92% Pervious = 0.380 ac 70.08% Impervious = 0.890 ac

Summary for Subcatchment 1S: PRE-DEV

Runoff = 9.60 cfs @ 12.07 hrs, Volume= 0.722 af, Depth> 7.16"

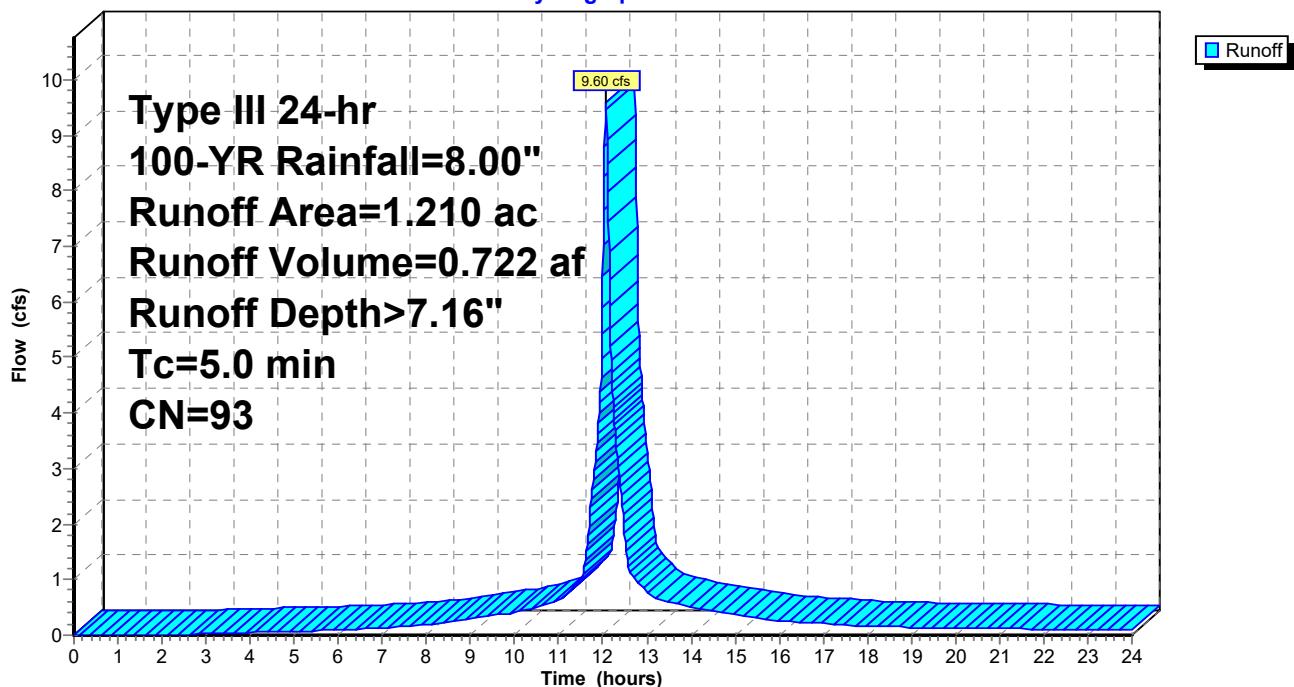
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-YR Rainfall=8.00"

Area (ac)	CN	Description
0.890	98	Paved parking, HSG D
0.320	80	>75% Grass cover, Good, HSG D
1.210	93	Weighted Average
0.320		26.45% Pervious Area
0.890		73.55% Impervious Area

Tc	Length	Slope	Velocity	Capacity	Description
(min)	(feet)	(ft/ft)	(ft/sec)	(cfs)	
5.0	Direct Entry,				

Subcatchment 1S: PRE-DEV

Hydrograph



100260-01-001 HYDRO pre

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Pre-Development
Type III 24-hr 100-YR Rainfall=8.00"
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Hydrograph for Subcatchment 1S: PRE-DEV

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
0.50	0.04	0.00	0.00
1.00	0.08	0.00	0.00
1.50	0.12	0.00	0.00
2.00	0.16	0.00	0.00
2.50	0.20	0.00	0.01
3.00	0.25	0.01	0.02
3.50	0.29	0.02	0.03
4.00	0.34	0.04	0.04
4.50	0.40	0.06	0.06
5.00	0.45	0.09	0.07
5.50	0.51	0.12	0.08
6.00	0.58	0.15	0.09
6.50	0.65	0.20	0.11
7.00	0.72	0.25	0.14
7.50	0.81	0.31	0.16
8.00	0.91	0.38	0.19
8.50	1.03	0.47	0.24
9.00	1.17	0.58	0.29
9.50	1.33	0.72	0.35
10.00	1.51	0.88	0.41
10.50	1.73	1.07	0.52
11.00	2.00	1.31	0.63
11.50	2.38	1.67	1.02
12.00	4.00	3.22	6.46
12.50	5.62	4.80	1.80
13.00	6.00	5.18	0.77
13.50	6.27	5.45	0.61
14.00	6.49	5.66	0.49
14.50	6.67	5.85	0.43
15.00	6.83	6.01	0.37
15.50	6.97	6.14	0.32
16.00	7.09	6.26	0.26
16.50	7.19	6.36	0.23
17.00	7.28	6.44	0.21
17.50	7.36	6.52	0.18
18.00	7.42	6.59	0.16
18.50	7.49	6.65	0.15
19.00	7.55	6.71	0.14
19.50	7.60	6.77	0.13
20.00	7.66	6.82	0.13
20.50	7.71	6.87	0.12
21.00	7.76	6.92	0.12
21.50	7.80	6.97	0.11
22.00	7.85	7.01	0.10
22.50	7.89	7.05	0.10
23.00	7.93	7.09	0.09
23.50	7.96	7.13	0.09
24.00	8.00	7.16	0.08

Summary for Subcatchment 2S: BYPASS

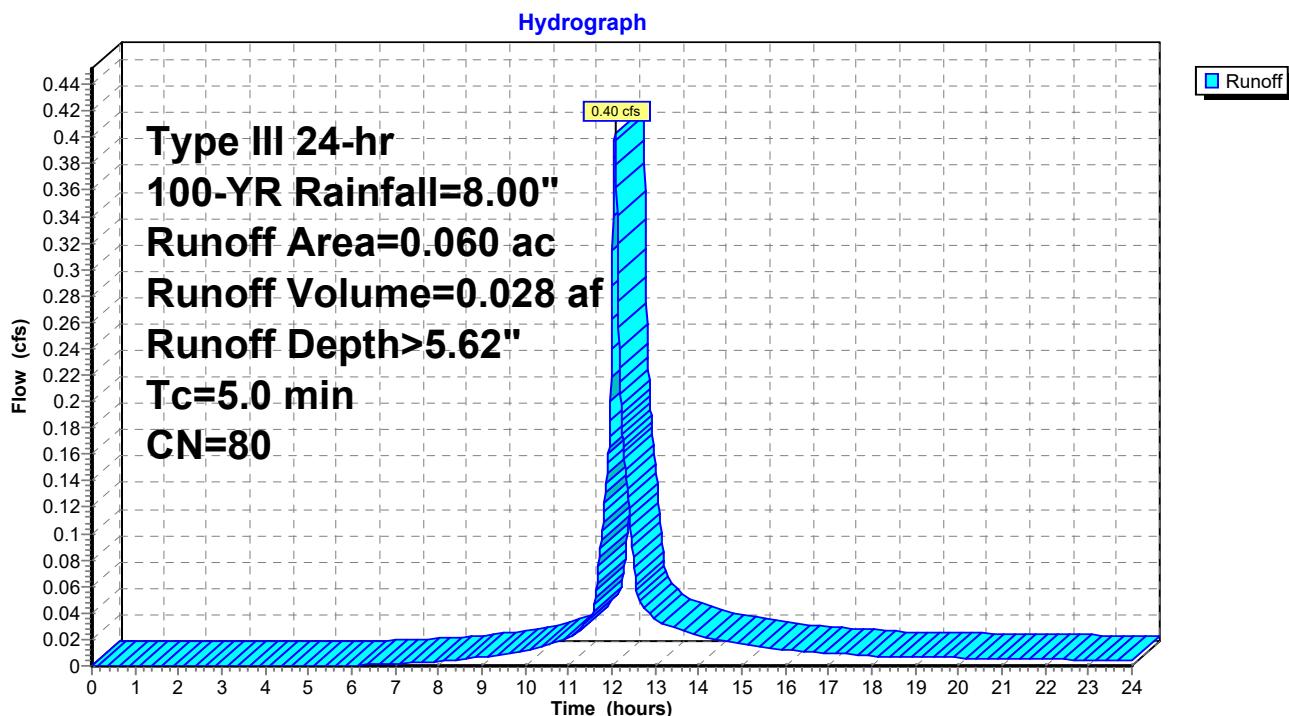
Runoff = 0.40 cfs @ 12.07 hrs, Volume= 0.028 af, Depth> 5.62"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-YR Rainfall=8.00"

Area (ac)	CN	Description
0.060	80	>75% Grass cover, Good, HSG D
0.060		100.00% Pervious Area

Tc	Length	Slope	Velocity	Capacity	Description
(min)	(feet)	(ft/ft)	(ft/sec)	(cfs)	
5.0	Direct Entry,				

Subcatchment 2S: BYPASS



Hydrograph for Subcatchment 2S: BYPASS

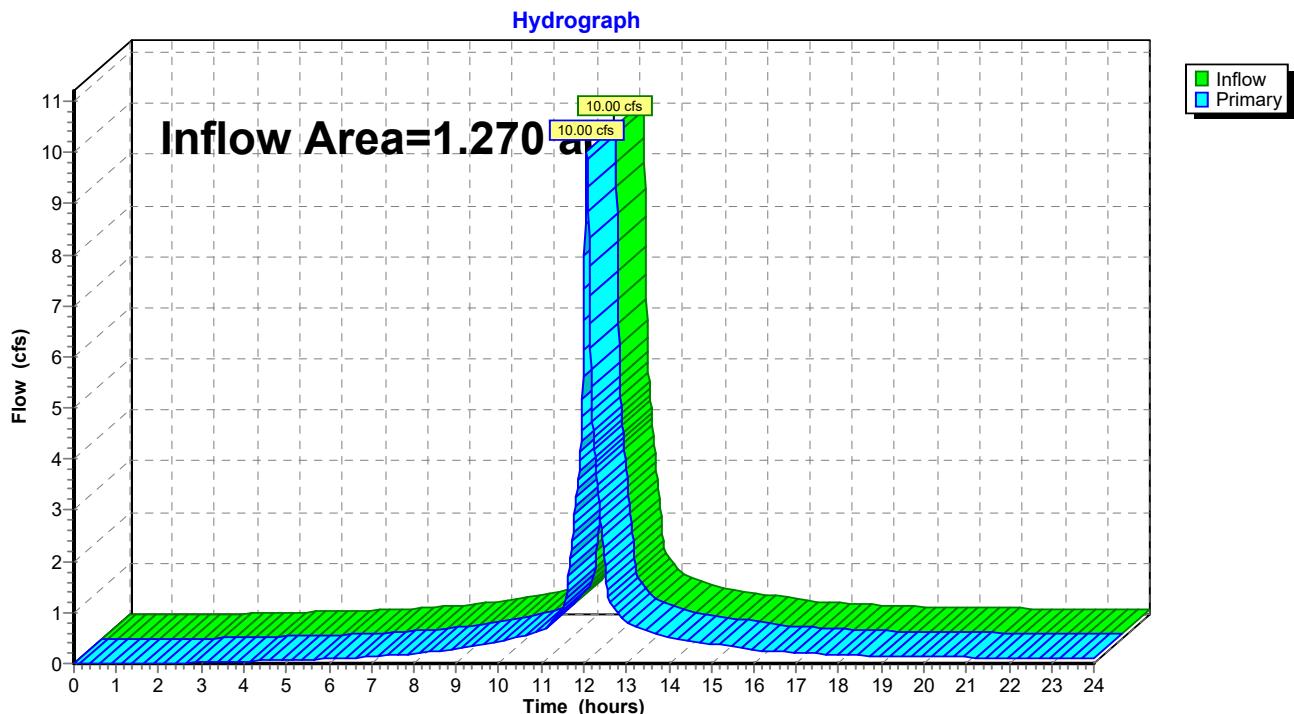
Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
0.50	0.04	0.00	0.00
1.00	0.08	0.00	0.00
1.50	0.12	0.00	0.00
2.00	0.16	0.00	0.00
2.50	0.20	0.00	0.00
3.00	0.25	0.00	0.00
3.50	0.29	0.00	0.00
4.00	0.34	0.00	0.00
4.50	0.40	0.00	0.00
5.00	0.45	0.00	0.00
5.50	0.51	0.00	0.00
6.00	0.58	0.00	0.00
6.50	0.65	0.01	0.00
7.00	0.72	0.02	0.00
7.50	0.81	0.03	0.00
8.00	0.91	0.06	0.00
8.50	1.03	0.09	0.00
9.00	1.17	0.14	0.01
9.50	1.33	0.21	0.01
10.00	1.51	0.29	0.01
10.50	1.73	0.41	0.02
11.00	2.00	0.56	0.02
11.50	2.38	0.81	0.04
12.00	4.00	2.04	0.26
12.50	5.62	3.44	0.08
13.00	6.00	3.78	0.03
13.50	6.27	4.02	0.03
14.00	6.49	4.22	0.02
14.50	6.67	4.39	0.02
15.00	6.83	4.54	0.02
15.50	6.97	4.67	0.01
16.00	7.09	4.78	0.01
16.50	7.19	4.87	0.01
17.00	7.28	4.95	0.01
17.50	7.36	5.02	0.01
18.00	7.42	5.09	0.01
18.50	7.49	5.15	0.01
19.00	7.55	5.20	0.01
19.50	7.60	5.25	0.01
20.00	7.66	5.30	0.01
20.50	7.71	5.35	0.01
21.00	7.76	5.40	0.01
21.50	7.80	5.44	0.01
22.00	7.85	5.48	0.00
22.50	7.89	5.52	0.00
23.00	7.93	5.56	0.00
23.50	7.96	5.59	0.00
24.00	8.00	5.63	0.00

Summary for Link 3L: (new Link)

Inflow Area = 1.270 ac, 70.08% Impervious, Inflow Depth > 7.09" for 100-YR event
Inflow = 10.00 cfs @ 12.07 hrs, Volume= 0.750 af
Primary = 10.00 cfs @ 12.07 hrs, Volume= 0.750 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs

Link 3L: (new Link)



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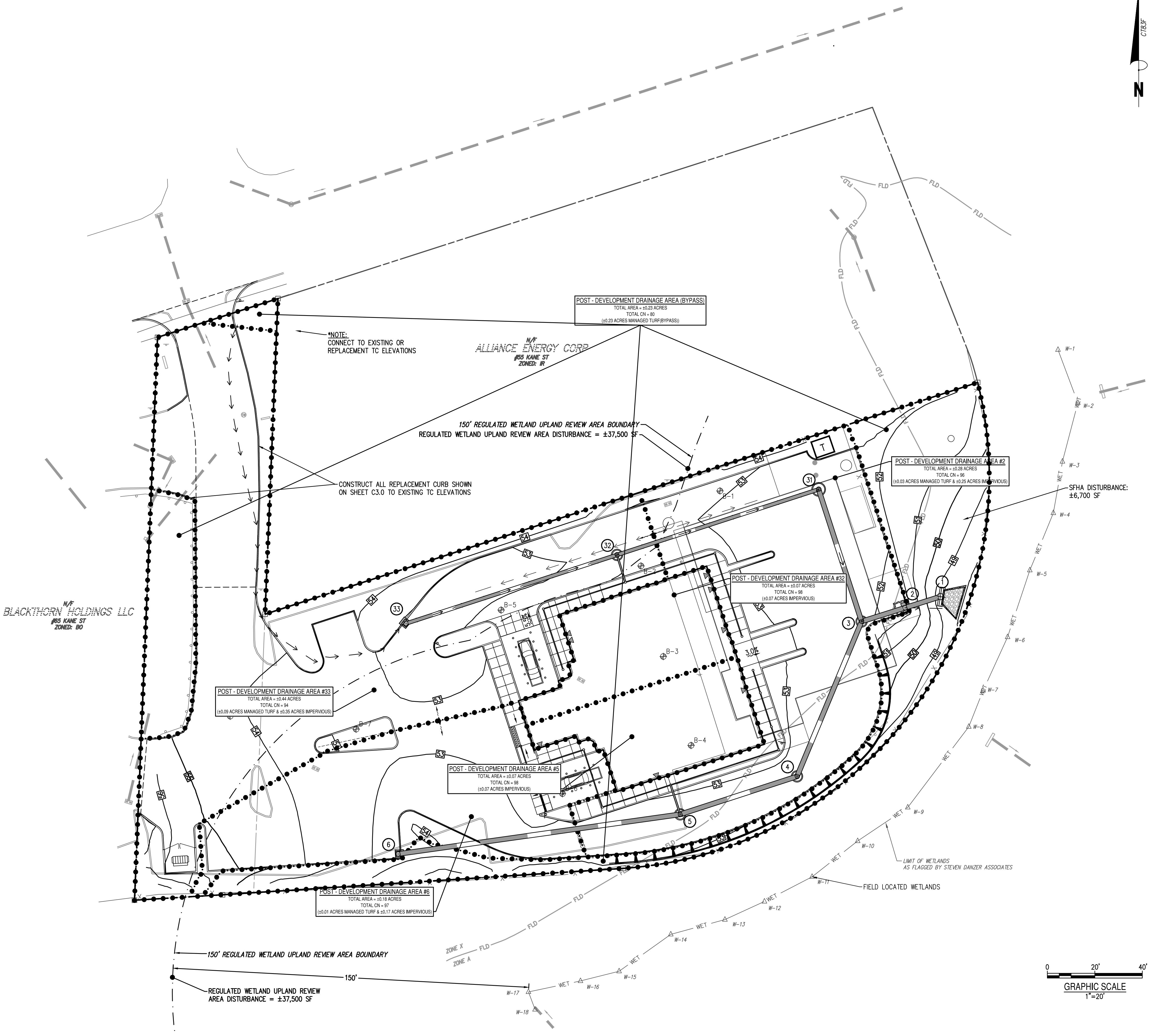
Pre-Development
Type III 24-hr 100-YR Rainfall=8.00"
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Hydrograph for Link 3L: (new Link)

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00	0.00	0.00
0.50	0.00	0.00	0.00
1.00	0.00	0.00	0.00
1.50	0.00	0.00	0.00
2.00	0.00	0.00	0.00
2.50	0.01	0.00	0.01
3.00	0.02	0.00	0.02
3.50	0.03	0.00	0.03
4.00	0.04	0.00	0.04
4.50	0.06	0.00	0.06
5.00	0.07	0.00	0.07
5.50	0.08	0.00	0.08
6.00	0.09	0.00	0.09
6.50	0.11	0.00	0.11
7.00	0.14	0.00	0.14
7.50	0.16	0.00	0.16
8.00	0.19	0.00	0.19
8.50	0.24	0.00	0.24
9.00	0.30	0.00	0.30
9.50	0.36	0.00	0.36
10.00	0.42	0.00	0.42
10.50	0.53	0.00	0.53
11.00	0.65	0.00	0.65
11.50	1.06	0.00	1.06
12.00	6.72	0.00	6.72
12.50	1.88	0.00	1.88
13.00	0.81	0.00	0.81
13.50	0.63	0.00	0.63
14.00	0.51	0.00	0.51
14.50	0.45	0.00	0.45
15.00	0.39	0.00	0.39
15.50	0.33	0.00	0.33
16.00	0.27	0.00	0.27
16.50	0.24	0.00	0.24
17.00	0.22	0.00	0.22
17.50	0.19	0.00	0.19
18.00	0.17	0.00	0.17
18.50	0.16	0.00	0.16
19.00	0.15	0.00	0.15
19.50	0.14	0.00	0.14
20.00	0.13	0.00	0.13
20.50	0.13	0.00	0.13
21.00	0.12	0.00	0.12
21.50	0.12	0.00	0.12
22.00	0.11	0.00	0.11
22.50	0.10	0.00	0.10
23.00	0.10	0.00	0.10
23.50	0.09	0.00	0.09
24.00	0.09	0.00	0.09

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APPENDIX B
POST-DEVELOPMENT
DRAINAGE PLAN



Bowman Consulting

CARVANA - PROPOSED CUSTOMER CENTER PLAN SET FOR SITE PLAN, SFHA, & IWWA



CONSTRUCTION REVISION SUMMARY		
NO.	DATE	DESCRIPTION
BCG DESIGN	BCG DRAWN	BH CHKD
JOB No. 100260-01-001		
DATE : 04-22-2020		
SHEET C6.1		

**CARVANA - PROPOSED CUSTOMER CENTER
PLAN SET FOR SITE PLAN, SFHA, & IWWA**

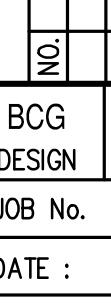
TOWN OF WEST HARTFORD, CT

POST-DEVELOPMENT DRAINAGE MAP

BOWMANman
C O N S U L T I N G

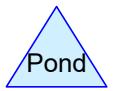
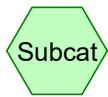
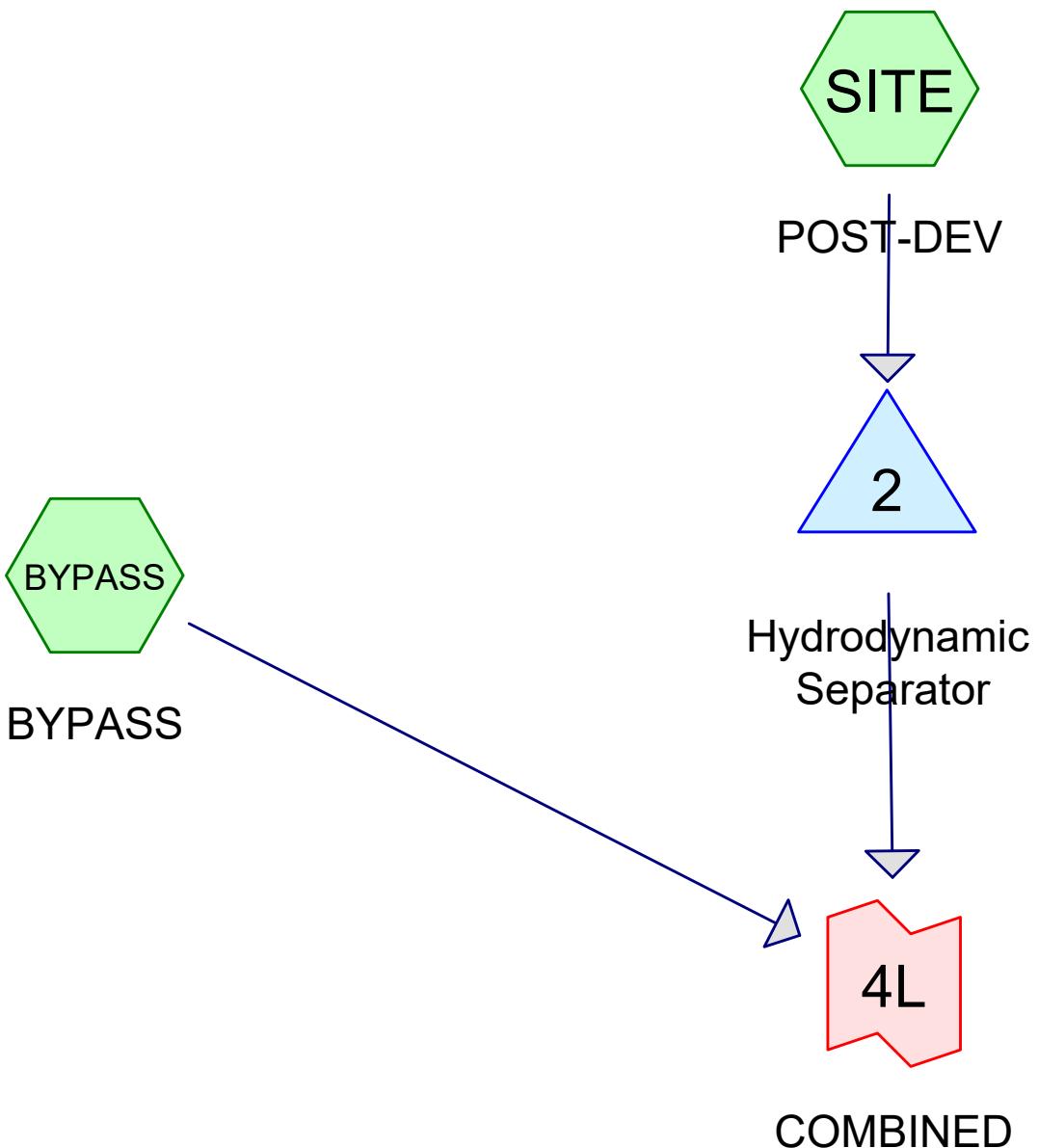
Bowman Consulting Group, Ltd.
3951 Westerly Parkway
Suite 150
Richmond, Virginia 23233
Phone: (804) 616-3240
Fax: (804) 270-2008
www.bowmanconsulting.com

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APPENDIX C
POST-DEVELOPMENT
HYDROCAD REPORT



Routing Diagram for 100260-01-001 HYDRO
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100260-01-001 HYDRO

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Page 2

Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
0.360	80	(BYPASS, SITE)
0.910	98	(SITE)
1.270	93	TOTAL AREA

100260-01-001 HYDRO

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Soil Listing (all nodes)

Area (acres)	Soil Group	Subcatchment Numbers
0.000	HSG A	
0.000	HSG B	
0.000	HSG C	
0.000	HSG D	
1.270	Other	BYPASS, SITE
1.270		TOTAL AREA

100260-01-001 HYDRO

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Ground Covers (all nodes)

HSG-A (acres)	HSG-B (acres)	HSG-C (acres)	HSG-D (acres)	Other (acres)	Total (acres)	Ground Cover	Subcatchment Numbers
0.000	0.000	0.000	0.000	1.270	1.270		BYPASS, SITE
0.000	0.000	0.000	0.000	1.270	1.270	TOTAL AREA	

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Pipe Listing (all nodes)

Line#	Node Number	In-Invert (feet)	Out-Invert (feet)	Length (feet)	Slope (ft/ft)	n	Diam/Width (inches)	Height (inches)	Inside-Fill (inches)
1	2	48.27	48.25	13.3	0.0015	0.011	24.0	0.0	0.0

100260-01-001 HYDRO

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Type III 24-hr 2-YR Rainfall=3.15"

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Time span=0.00-24.00 hrs, dt=0.01 hrs, 2401 points

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN

Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

SubcatchmentBYPASS: BYPASSRunoff Area=0.230 ac 0.00% Impervious Runoff Depth>1.36"
Tc=5.0 min CN=80 Runoff=0.38 cfs 0.026 af**SubcatchmentSITE: POST-DEV**Runoff Area=1.040 ac 87.50% Impervious Runoff Depth>2.70"
Tc=5.0 min CN=96 Runoff=3.18 cfs 0.234 af**Pond 2: HydrodynamicSeparator**Peak Elev=49.32' Storage=0.009 af Inflow=3.18 cfs 0.234 af
Outflow=2.65 cfs 0.234 af**Link 4L: COMBINED**Inflow=2.98 cfs 0.260 af
Primary=2.98 cfs 0.260 af**Total Runoff Area = 1.270 ac Runoff Volume = 0.260 af Average Runoff Depth = 2.46"**
28.35% Pervious = 0.360 ac 71.65% Impervious = 0.910 ac

Summary for Subcatchment BYPASS: BYPASS

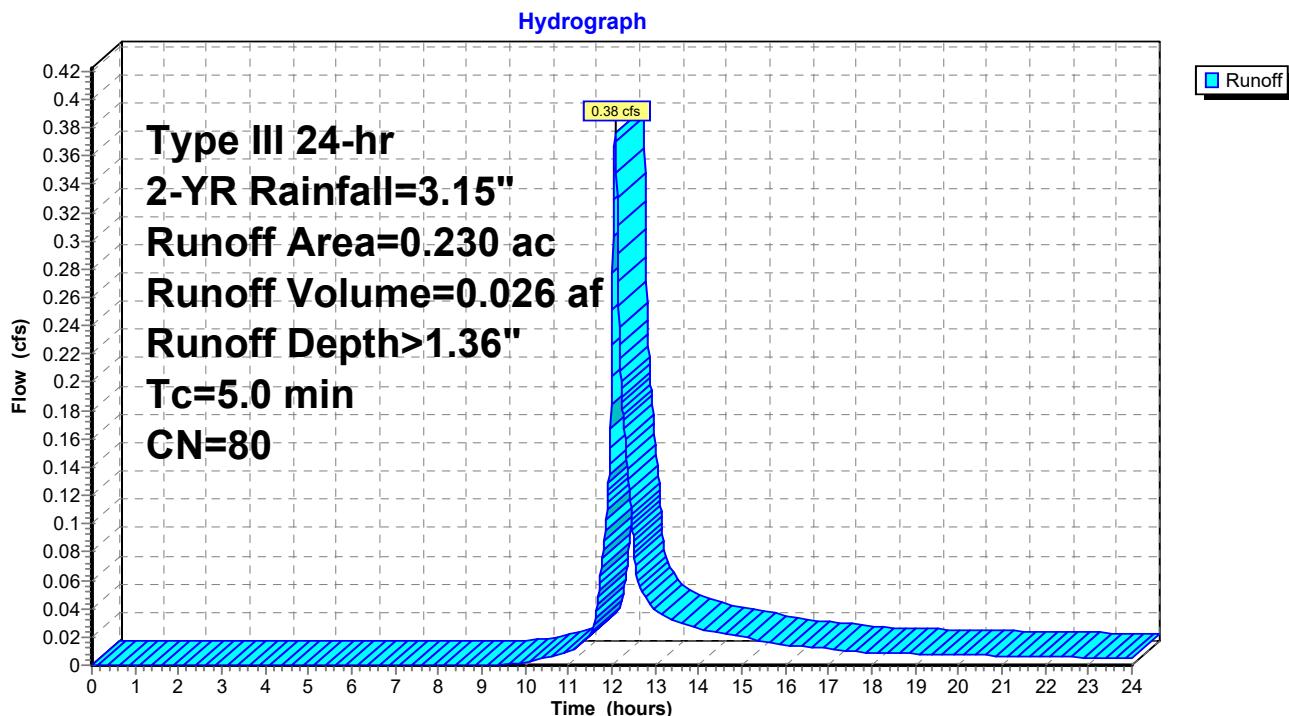
Runoff = 0.38 cfs @ 12.08 hrs, Volume= 0.026 af, Depth> 1.36"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
 Type III 24-hr 2-YR Rainfall=3.15"

Area (ac)	CN	Description
* 0.230	80	
0.230		100.00% Pervious Area

Tc	Length	Slope	Velocity	Capacity	Description
(min)	(feet)	(ft/ft)	(ft/sec)	(cfs)	
5.0				Direct Entry,	

Subcatchment BYPASS: BYPASS



Hydrograph for Subcatchment BYPASS: BYPASS

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
0.50	0.02	0.00	0.00
1.00	0.03	0.00	0.00
1.50	0.05	0.00	0.00
2.00	0.06	0.00	0.00
2.50	0.08	0.00	0.00
3.00	0.10	0.00	0.00
3.50	0.12	0.00	0.00
4.00	0.14	0.00	0.00
4.50	0.16	0.00	0.00
5.00	0.18	0.00	0.00
5.50	0.20	0.00	0.00
6.00	0.23	0.00	0.00
6.50	0.25	0.00	0.00
7.00	0.29	0.00	0.00
7.50	0.32	0.00	0.00
8.00	0.36	0.00	0.00
8.50	0.40	0.00	0.00
9.00	0.46	0.00	0.00
9.50	0.52	0.00	0.00
10.00	0.60	0.00	0.00
10.50	0.68	0.01	0.01
11.00	0.79	0.03	0.01
11.50	0.94	0.07	0.02
12.00	1.57	0.32	0.23
12.50	2.21	0.70	0.09
13.00	2.36	0.80	0.04
13.50	2.47	0.87	0.03
14.00	2.55	0.93	0.03
14.50	2.63	0.98	0.02
15.00	2.69	1.02	0.02
15.50	2.75	1.06	0.02
16.00	2.79	1.10	0.01
16.50	2.83	1.12	0.01
17.00	2.86	1.15	0.01
17.50	2.90	1.17	0.01
18.00	2.92	1.19	0.01
18.50	2.95	1.21	0.01
19.00	2.97	1.23	0.01
19.50	2.99	1.25	0.01
20.00	3.01	1.26	0.01
20.50	3.03	1.28	0.01
21.00	3.05	1.29	0.01
21.50	3.07	1.30	0.01
22.00	3.09	1.32	0.01
22.50	3.11	1.33	0.01
23.00	3.12	1.34	0.01
23.50	3.14	1.35	0.01
24.00	3.15	1.36	0.00

Summary for Subcatchment SITE: POST-DEV

Runoff = 3.18 cfs @ 12.07 hrs, Volume= 0.234 af, Depth> 2.70"

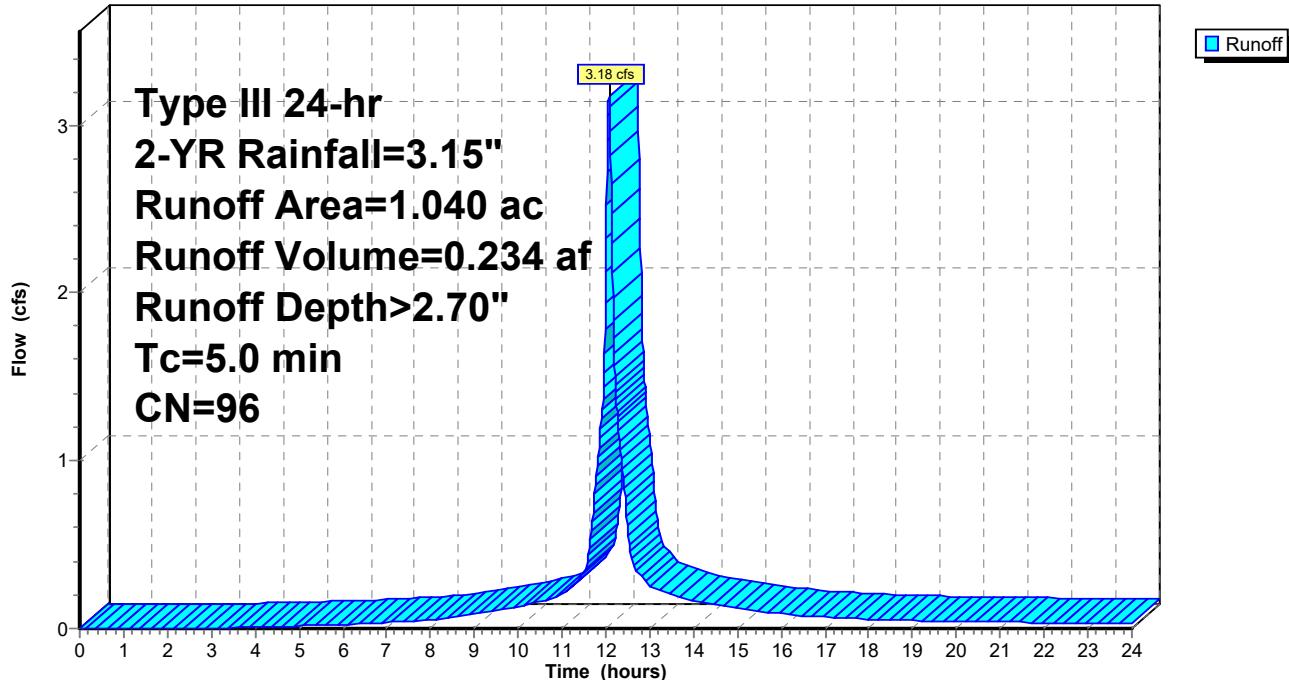
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
 Type III 24-hr 2-YR Rainfall=3.15"

Area (ac)	CN	Description
*	0.910	98
*	0.130	80
1.040	96	Weighted Average
0.130		12.50% Pervious Area
0.910		87.50% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

Subcatchment SITE: POST-DEV

Hydrograph



Hydrograph for Subcatchment SITE: POST-DEV

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
0.50	0.02	0.00	0.00
1.00	0.03	0.00	0.00
1.50	0.05	0.00	0.00
2.00	0.06	0.00	0.00
2.50	0.08	0.00	0.00
3.00	0.10	0.00	0.00
3.50	0.12	0.00	0.01
4.00	0.14	0.01	0.01
4.50	0.16	0.01	0.01
5.00	0.18	0.02	0.02
5.50	0.20	0.03	0.02
6.00	0.23	0.04	0.02
6.50	0.25	0.05	0.03
7.00	0.29	0.07	0.04
7.50	0.32	0.09	0.04
8.00	0.36	0.11	0.05
8.50	0.40	0.14	0.07
9.00	0.46	0.18	0.09
9.50	0.52	0.23	0.11
10.00	0.60	0.28	0.13
10.50	0.68	0.35	0.16
11.00	0.79	0.44	0.20
11.50	0.94	0.58	0.33
12.00	1.57	1.17	2.13
12.50	2.21	1.78	0.60
13.00	2.36	1.93	0.26
13.50	2.47	2.03	0.20
14.00	2.55	2.11	0.16
14.50	2.63	2.19	0.14
15.00	2.69	2.25	0.12
15.50	2.75	2.30	0.11
16.00	2.79	2.35	0.09
16.50	2.83	2.38	0.08
17.00	2.86	2.42	0.07
17.50	2.90	2.45	0.06
18.00	2.92	2.48	0.05
18.50	2.95	2.50	0.05
19.00	2.97	2.52	0.05
19.50	2.99	2.55	0.05
20.00	3.01	2.57	0.04
20.50	3.03	2.59	0.04
21.00	3.05	2.60	0.04
21.50	3.07	2.62	0.04
22.00	3.09	2.64	0.04
22.50	3.11	2.66	0.03
23.00	3.12	2.67	0.03
23.50	3.14	2.69	0.03
24.00	3.15	2.70	0.03

Summary for Pond 2: Hydrodynamic Separator

Inflow Area = 1.040 ac, 87.50% Impervious, Inflow Depth > 2.70" for 2-YR event
 Inflow = 3.18 cfs @ 12.07 hrs, Volume= 0.234 af
 Outflow = 2.65 cfs @ 12.12 hrs, Volume= 0.234 af, Atten= 17%, Lag= 3.0 min
 Primary = 2.65 cfs @ 12.12 hrs, Volume= 0.234 af

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
 Peak Elev= 49.32' @ 12.12 hrs Surf.Area= 0.018 ac Storage= 0.009 af

Plug-Flow detention time= 1.0 min calculated for 0.234 af (100% of inflow)
 Center-of-Mass det. time= 0.9 min (774.0 - 773.1)

Volume	Invert	Avail.Storage	Storage Description
#1	48.37'	0.009 af	24.0" Round Pipe Storage L= 128.9' S= 0.0015 '/'
#2	48.50'	0.014 af	24.0" Round Pipe Storage L= 191.2' S= 0.0015 '/'
#3	48.59'	0.007 af	18.0" Round Pipe Storage L= 182.7' S= 0.0050 '/'
			0.030 af Total Available Storage

Device	Routing	Invert	Outlet Devices
#1	Primary	48.27'	24.0" Round Culvert L= 13.3' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 48.27' / 48.25' S= 0.0015 '/' Cc= 0.900 n= 0.011 Concrete pipe, straight & clean, Flow Area= 3.14 sf
#2	Device 1	48.37'	8.0" Vert. Internal DVS Orifice Openings to Vortex Tubes (x2) X 2.00 C= 0.600
#3	Device 1	49.87'	3.0" long Internal DVS Weir 2 End Contraction(s)

Primary OutFlow Max=2.64 cfs @ 12.12 hrs HW=49.32' (Free Discharge)

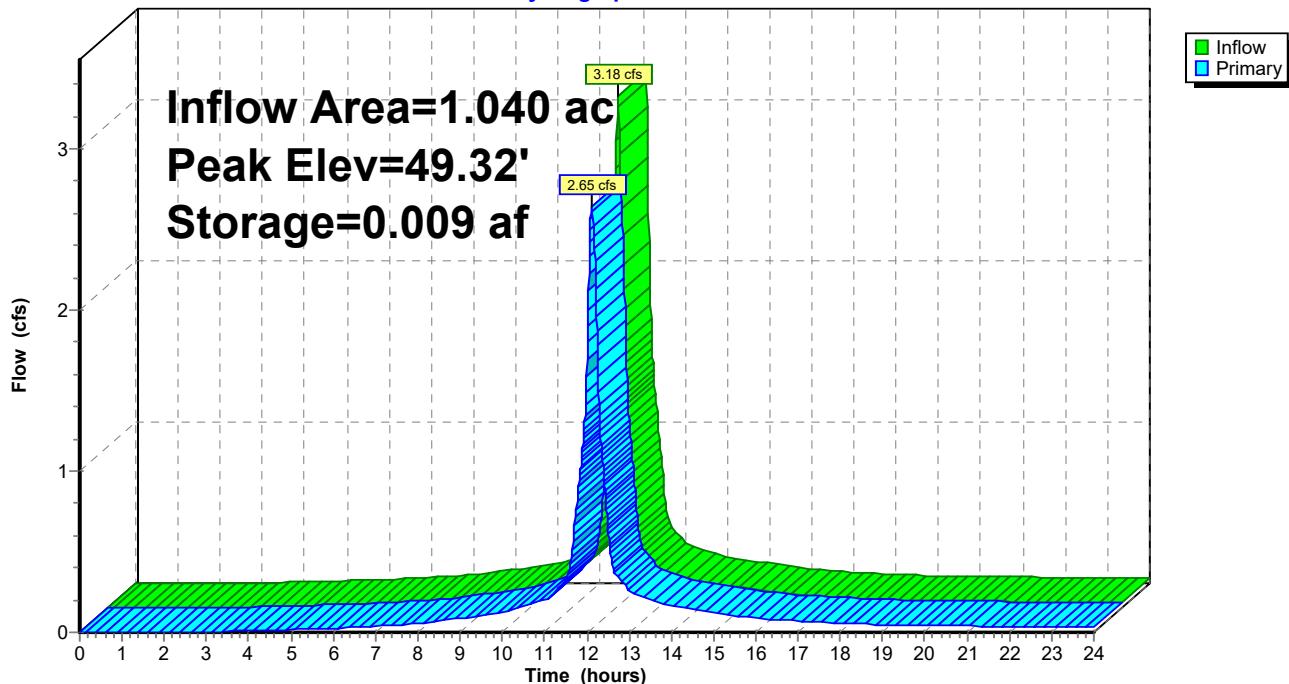
↑ 1=Culvert (Passes 2.64 cfs of 3.83 cfs potential flow)

↑ 2=Internal DVS Orifice Openings to Vortex Tubes (x2)(Orifice Controls 2.64 cfs @ 3.79 fps)

3=Internal DVS Weir (Controls 0.00 cfs)

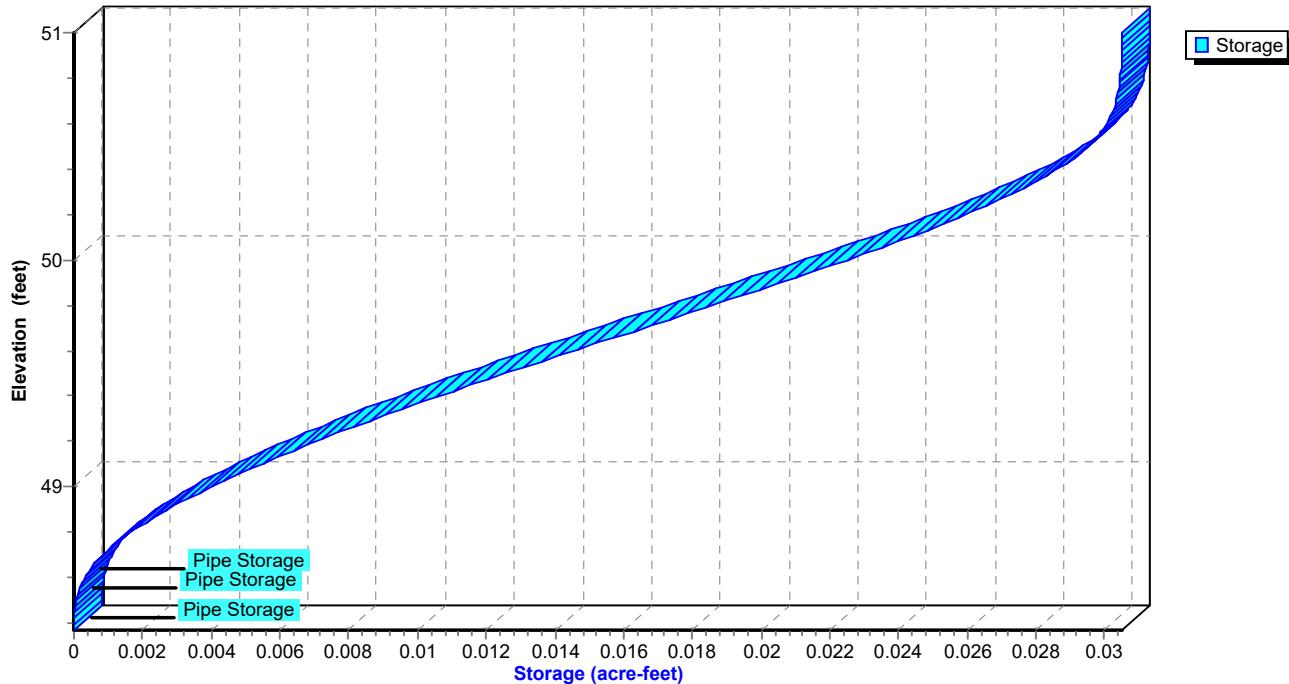
Pond 2: Hydrodynamic Separator

Hydrograph



Pond 2: Hydrodynamic Separator

Stage-Area-Storage



Hydrograph for Pond 2: Hydrodynamic Separator

Time (hours)	Inflow (cfs)	Storage (acre-feet)	Elevation (feet)	Primary (cfs)
0.00	0.00	0.000	48.37	0.00
0.50	0.00	0.000	48.37	0.00
1.00	0.00	0.000	48.37	0.00
1.50	0.00	0.000	48.37	0.00
2.00	0.00	0.000	48.37	0.00
2.50	0.00	0.000	48.37	0.00
3.00	0.00	0.000	48.38	0.00
3.50	0.01	0.000	48.40	0.01
4.00	0.01	0.000	48.40	0.01
4.50	0.01	0.000	48.41	0.01
5.00	0.02	0.000	48.41	0.02
5.50	0.02	0.000	48.42	0.02
6.00	0.02	0.000	48.43	0.02
6.50	0.03	0.000	48.43	0.03
7.00	0.04	0.000	48.44	0.04
7.50	0.04	0.000	48.45	0.04
8.00	0.05	0.000	48.46	0.05
8.50	0.07	0.000	48.47	0.07
9.00	0.09	0.000	48.48	0.09
9.50	0.11	0.000	48.49	0.11
10.00	0.13	0.000	48.50	0.13
10.50	0.16	0.000	48.52	0.16
11.00	0.20	0.000	48.54	0.20
11.50	0.33	0.000	48.59	0.32
12.00	2.13	0.003	48.96	1.70
12.50	0.60	0.001	48.70	0.67
13.00	0.26	0.000	48.57	0.26
13.50	0.20	0.000	48.54	0.20
14.00	0.16	0.000	48.52	0.17
14.50	0.14	0.000	48.51	0.14
15.00	0.12	0.000	48.50	0.12
15.50	0.11	0.000	48.49	0.11
16.00	0.09	0.000	48.48	0.09
16.50	0.08	0.000	48.47	0.08
17.00	0.07	0.000	48.47	0.07
17.50	0.06	0.000	48.46	0.06
18.00	0.05	0.000	48.46	0.05
18.50	0.05	0.000	48.45	0.05
19.00	0.05	0.000	48.45	0.05
19.50	0.05	0.000	48.45	0.05
20.00	0.04	0.000	48.45	0.04
20.50	0.04	0.000	48.44	0.04
21.00	0.04	0.000	48.44	0.04
21.50	0.04	0.000	48.44	0.04
22.00	0.04	0.000	48.44	0.04
22.50	0.03	0.000	48.44	0.03
23.00	0.03	0.000	48.44	0.03
23.50	0.03	0.000	48.43	0.03
24.00	0.03	0.000	48.43	0.03

Stage-Area-Storage for Pond 2: Hydrodynamic Separator

Elevation (feet)	Storage (acre-feet)	Elevation (feet)	Storage (acre-feet)	Elevation (feet)	Storage (acre-feet)
48.37	0.000	49.41	0.011	50.45	0.029
48.39	0.000	49.43	0.011	50.47	0.029
48.41	0.000	49.45	0.012	50.49	0.029
48.43	0.000	49.47	0.012	50.51	0.030
48.45	0.000	49.49	0.012	50.53	0.030
48.47	0.000	49.51	0.013	50.55	0.030
48.49	0.000	49.53	0.013	50.57	0.030
48.51	0.000	49.55	0.014	50.59	0.030
48.53	0.000	49.57	0.014	50.61	0.030
48.55	0.000	49.59	0.014	50.63	0.030
48.57	0.000	49.61	0.015	50.65	0.030
48.59	0.000	49.63	0.015	50.67	0.030
48.61	0.000	49.65	0.016	50.69	0.030
48.63	0.000	49.67	0.016	50.71	0.030
48.65	0.001	49.69	0.016	50.73	0.030
48.67	0.001	49.71	0.017	50.75	0.030
48.69	0.001	49.73	0.017	50.77	0.030
48.71	0.001	49.75	0.018	50.79	0.030
48.73	0.001	49.77	0.018	50.81	0.030
48.75	0.001	49.79	0.018	50.83	0.030
48.77	0.001	49.81	0.019	50.85	0.030
48.79	0.002	49.83	0.019	50.87	0.030
48.81	0.002	49.85	0.020	50.89	0.030
48.83	0.002	49.87	0.020	50.91	0.030
48.85	0.002	49.89	0.020	50.93	0.030
48.87	0.002	49.91	0.021	50.95	0.030
48.89	0.003	49.93	0.021	50.97	0.030
48.91	0.003	49.95	0.022	50.99	0.030
48.93	0.003	49.97	0.022		
48.95	0.003	49.99	0.022		
48.97	0.004	50.01	0.023		
48.99	0.004	50.03	0.023		
49.01	0.004	50.05	0.023		
49.03	0.004	50.07	0.024		
49.05	0.005	50.09	0.024		
49.07	0.005	50.11	0.024		
49.09	0.005	50.13	0.025		
49.11	0.006	50.15	0.025		
49.13	0.006	50.17	0.025		
49.15	0.006	50.19	0.026		
49.17	0.007	50.21	0.026		
49.19	0.007	50.23	0.026		
49.21	0.007	50.25	0.027		
49.23	0.008	50.27	0.027		
49.25	0.008	50.29	0.027		
49.27	0.008	50.31	0.028		
49.29	0.009	50.33	0.028		
49.31	0.009	50.35	0.028		
49.33	0.009	50.37	0.028		
49.35	0.010	50.39	0.029		
49.37	0.010	50.41	0.029		
49.39	0.010	50.43	0.029		

Summary for Link 4L: COMBINED

Inflow Area = 1.270 ac, 71.65% Impervious, Inflow Depth > 2.46" for 2-YR event

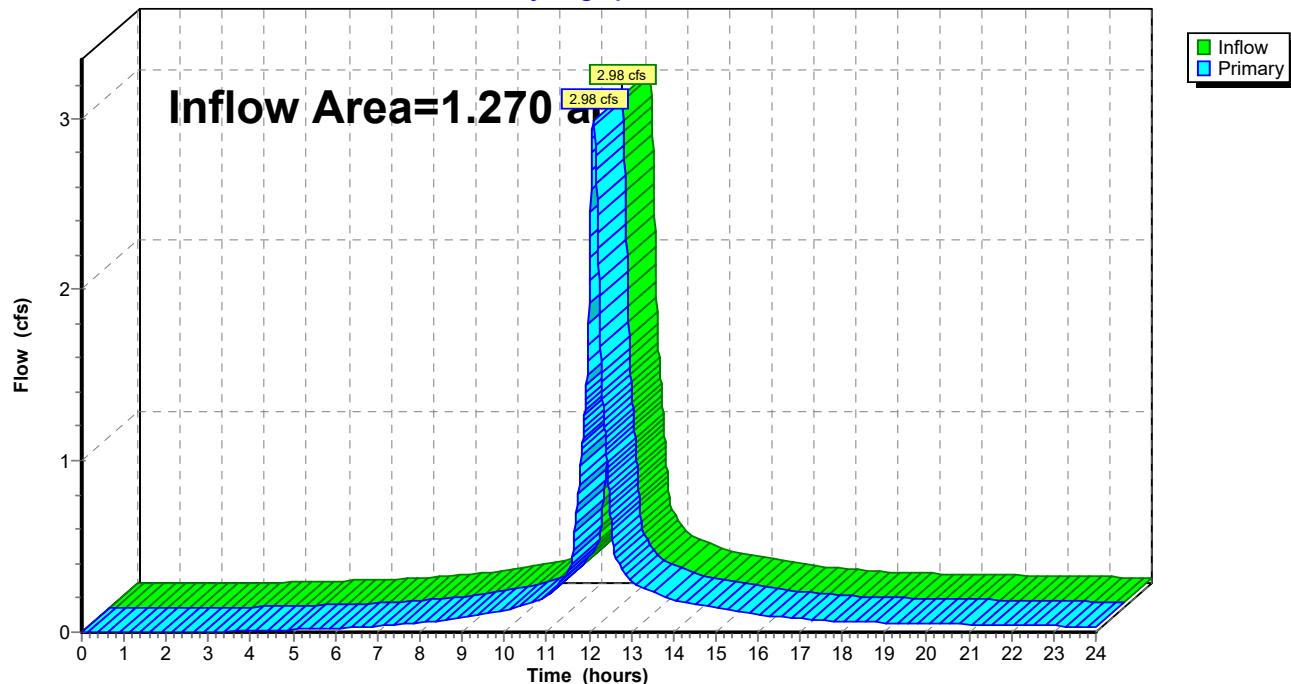
Inflow = 2.98 cfs @ 12.11 hrs, Volume= 0.260 af

Primary = 2.98 cfs @ 12.11 hrs, Volume= 0.260 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs

Link 4L: COMBINED

Hydrograph



Hydrograph for Link 4L: COMBINED

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00	0.00	0.00
0.50	0.00	0.00	0.00
1.00	0.00	0.00	0.00
1.50	0.00	0.00	0.00
2.00	0.00	0.00	0.00
2.50	0.00	0.00	0.00
3.00	0.00	0.00	0.00
3.50	0.01	0.00	0.01
4.00	0.01	0.00	0.01
4.50	0.01	0.00	0.01
5.00	0.02	0.00	0.02
5.50	0.02	0.00	0.02
6.00	0.02	0.00	0.02
6.50	0.03	0.00	0.03
7.00	0.04	0.00	0.04
7.50	0.04	0.00	0.04
8.00	0.05	0.00	0.05
8.50	0.07	0.00	0.07
9.00	0.09	0.00	0.09
9.50	0.11	0.00	0.11
10.00	0.13	0.00	0.13
10.50	0.17	0.00	0.17
11.00	0.21	0.00	0.21
11.50	0.35	0.00	0.35
12.00	1.93	0.00	1.93
12.50	0.76	0.00	0.76
13.00	0.30	0.00	0.30
13.50	0.24	0.00	0.24
14.00	0.19	0.00	0.19
14.50	0.17	0.00	0.17
15.00	0.14	0.00	0.14
15.50	0.12	0.00	0.12
16.00	0.10	0.00	0.10
16.50	0.09	0.00	0.09
17.00	0.08	0.00	0.08
17.50	0.07	0.00	0.07
18.00	0.06	0.00	0.06
18.50	0.06	0.00	0.06
19.00	0.06	0.00	0.06
19.50	0.05	0.00	0.05
20.00	0.05	0.00	0.05
20.50	0.05	0.00	0.05
21.00	0.05	0.00	0.05
21.50	0.04	0.00	0.04
22.00	0.04	0.00	0.04
22.50	0.04	0.00	0.04
23.00	0.04	0.00	0.04
23.50	0.03	0.00	0.03
24.00	0.03	0.00	0.03

100260-01-001 HYDRO

Prepared by Bowman Consulting

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Type III 24-hr 5-YR Rainfall=4.17"

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Page 17

Time span=0.00-24.00 hrs, dt=0.01 hrs, 2401 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

SubcatchmentBYPASS: BYPASS

Runoff Area=0.230 ac 0.00% Impervious Runoff Depth>2.18"
Tc=5.0 min CN=80 Runoff=0.61 cfs 0.042 af

SubcatchmentSITE: POST-DEV

Runoff Area=1.040 ac 87.50% Impervious Runoff Depth>3.71"
Tc=5.0 min CN=96 Runoff=4.29 cfs 0.321 af

Pond 2: HydrodynamicSeparator

Peak Elev=49.67' Storage=0.016 af Inflow=4.29 cfs 0.321 af
Outflow=3.30 cfs 0.321 af

Link 4L: COMBINED

Inflow=3.83 cfs 0.363 af
Primary=3.83 cfs 0.363 af

Total Runoff Area = 1.270 ac Runoff Volume = 0.363 af Average Runoff Depth = 3.43"
28.35% Pervious = 0.360 ac 71.65% Impervious = 0.910 ac

Summary for Subcatchment BYPASS: BYPASS

Runoff = 0.61 cfs @ 12.08 hrs, Volume= 0.042 af, Depth> 2.18"

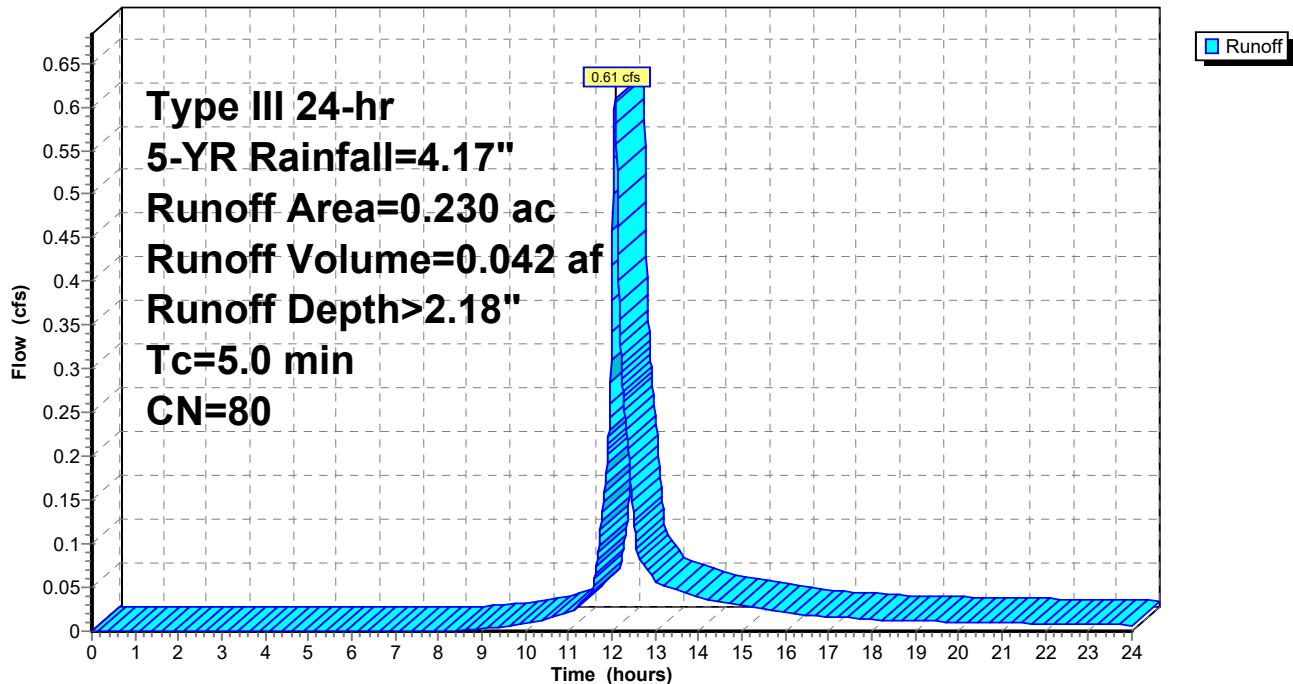
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
 Type III 24-hr 5-YR Rainfall=4.17"

Area (ac)	CN	Description
* 0.230	80	
0.230		100.00% Pervious Area

Tc	Length	Slope	Velocity	Capacity	Description
(min)	(feet)	(ft/ft)	(ft/sec)	(cfs)	
5.0				0.61	Direct Entry,

Subcatchment BYPASS: BYPASS

Hydrograph



Hydrograph for Subcatchment BYPASS: BYPASS

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
0.50	0.02	0.00	0.00
1.00	0.04	0.00	0.00
1.50	0.06	0.00	0.00
2.00	0.08	0.00	0.00
2.50	0.11	0.00	0.00
3.00	0.13	0.00	0.00
3.50	0.15	0.00	0.00
4.00	0.18	0.00	0.00
4.50	0.21	0.00	0.00
5.00	0.24	0.00	0.00
5.50	0.27	0.00	0.00
6.00	0.30	0.00	0.00
6.50	0.34	0.00	0.00
7.00	0.38	0.00	0.00
7.50	0.42	0.00	0.00
8.00	0.48	0.00	0.00
8.50	0.54	0.00	0.00
9.00	0.61	0.00	0.00
9.50	0.69	0.01	0.01
10.00	0.79	0.03	0.01
10.50	0.90	0.06	0.01
11.00	1.04	0.10	0.02
11.50	1.24	0.17	0.04
12.00	2.08	0.61	0.38
12.50	2.93	1.20	0.13
13.00	3.13	1.35	0.06
13.50	3.27	1.45	0.05
14.00	3.38	1.54	0.04
14.50	3.48	1.62	0.03
15.00	3.56	1.69	0.03
15.50	3.63	1.74	0.03
16.00	3.69	1.79	0.02
16.50	3.75	1.83	0.02
17.00	3.79	1.87	0.02
17.50	3.83	1.91	0.01
18.00	3.87	1.93	0.01
18.50	3.90	1.96	0.01
19.00	3.93	1.99	0.01
19.50	3.96	2.01	0.01
20.00	3.99	2.03	0.01
20.50	4.02	2.06	0.01
21.00	4.04	2.08	0.01
21.50	4.07	2.10	0.01
22.00	4.09	2.12	0.01
22.50	4.11	2.13	0.01
23.00	4.13	2.15	0.01
23.50	4.15	2.17	0.01
24.00	4.17	2.18	0.01

Summary for Subcatchment SITE: POST-DEV

Runoff = 4.29 cfs @ 12.07 hrs, Volume= 0.321 af, Depth> 3.71"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
 Type III 24-hr 5-YR Rainfall=4.17"

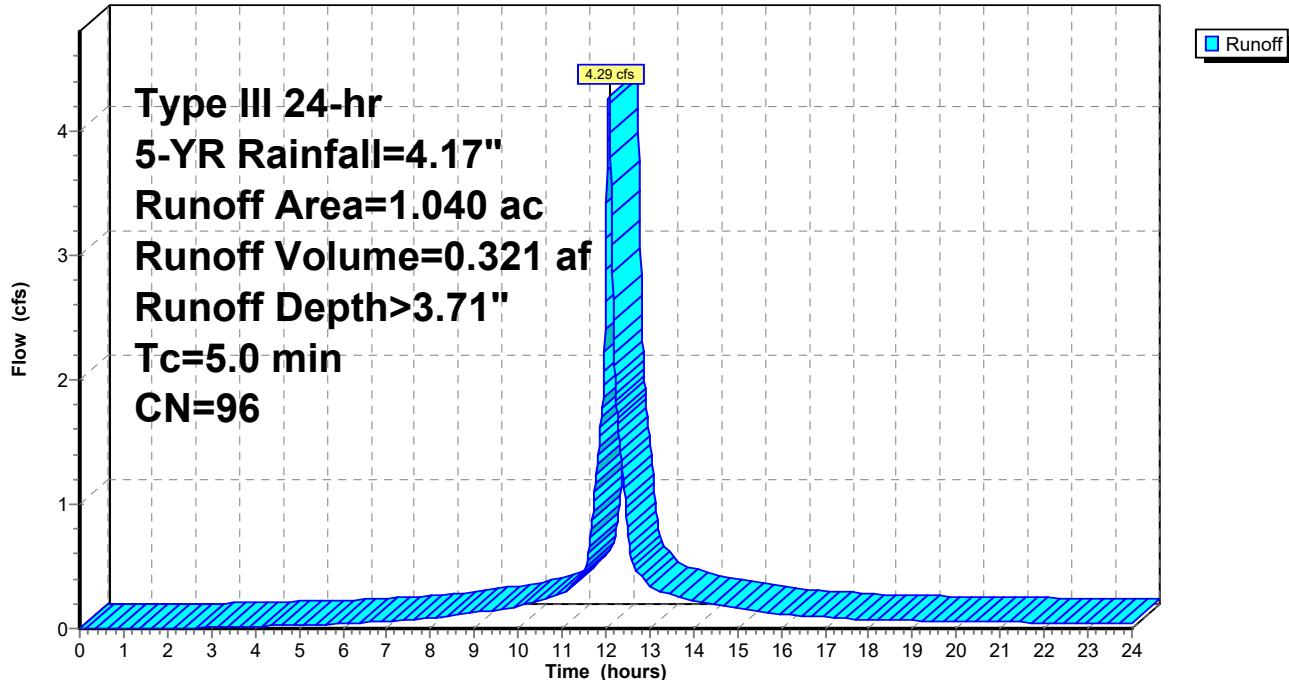
Area (ac)	CN	Description
* 0.910	98	
* 0.130	80	

1.040	96	Weighted Average
0.130		12.50% Pervious Area
0.910		87.50% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0	Direct Entry,				

Subcatchment SITE: POST-DEV

Hydrograph



Hydrograph for Subcatchment SITE: POST-DEV

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
0.50	0.02	0.00	0.00
1.00	0.04	0.00	0.00
1.50	0.06	0.00	0.00
2.00	0.08	0.00	0.00
2.50	0.11	0.00	0.00
3.00	0.13	0.00	0.01
3.50	0.15	0.01	0.01
4.00	0.18	0.02	0.02
4.50	0.21	0.03	0.02
5.00	0.24	0.04	0.03
5.50	0.27	0.06	0.03
6.00	0.30	0.07	0.04
6.50	0.34	0.10	0.05
7.00	0.38	0.12	0.06
7.50	0.42	0.15	0.07
8.00	0.48	0.19	0.08
8.50	0.54	0.24	0.10
9.00	0.61	0.29	0.13
9.50	0.69	0.36	0.15
10.00	0.79	0.44	0.18
10.50	0.90	0.54	0.23
11.00	1.04	0.67	0.28
11.50	1.24	0.85	0.45
12.00	2.08	1.66	2.88
12.50	2.93	2.48	0.80
13.00	3.13	2.68	0.35
13.50	3.27	2.82	0.27
14.00	3.38	2.93	0.22
14.50	3.48	3.02	0.19
15.00	3.56	3.11	0.17
15.50	3.63	3.18	0.14
16.00	3.69	3.24	0.12
16.50	3.75	3.29	0.10
17.00	3.79	3.33	0.09
17.50	3.83	3.38	0.08
18.00	3.87	3.41	0.07
18.50	3.90	3.44	0.07
19.00	3.93	3.47	0.06
19.50	3.96	3.50	0.06
20.00	3.99	3.53	0.06
20.50	4.02	3.56	0.05
21.00	4.04	3.58	0.05
21.50	4.07	3.61	0.05
22.00	4.09	3.63	0.05
22.50	4.11	3.65	0.04
23.00	4.13	3.67	0.04
23.50	4.15	3.69	0.04
24.00	4.17	3.71	0.04

Summary for Pond 2: Hydrodynamic Separator

Inflow Area = 1.040 ac, 87.50% Impervious, Inflow Depth > 3.71" for 5-YR event
 Inflow = 4.29 cfs @ 12.07 hrs, Volume= 0.321 af
 Outflow = 3.30 cfs @ 12.13 hrs, Volume= 0.321 af, Atten= 23%, Lag= 3.6 min
 Primary = 3.30 cfs @ 12.13 hrs, Volume= 0.321 af

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
 Peak Elev= 49.67' @ 12.13 hrs Surf.Area= 0.020 ac Storage= 0.016 af

Plug-Flow detention time= 1.2 min calculated for 0.321 af (100% of inflow)
 Center-of-Mass det. time= 1.2 min (766.7 - 765.5)

Volume	Invert	Avail.Storage	Storage Description
#1	48.37'	0.009 af	24.0" Round Pipe Storage L= 128.9' S= 0.0015 '/'
#2	48.50'	0.014 af	24.0" Round Pipe Storage L= 191.2' S= 0.0015 '/'
#3	48.59'	0.007 af	18.0" Round Pipe Storage L= 182.7' S= 0.0050 '/'
			0.030 af Total Available Storage

Device	Routing	Invert	Outlet Devices
#1	Primary	48.27'	24.0" Round Culvert L= 13.3' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 48.27' / 48.25' S= 0.0015 '/' Cc= 0.900 n= 0.011 Concrete pipe, straight & clean, Flow Area= 3.14 sf
#2	Device 1	48.37'	8.0" Vert. Internal DVS Orifice Openings to Vortex Tubes (x2) X 2.00 C= 0.600
#3	Device 1	49.87'	3.0" long Internal DVS Weir 2 End Contraction(s)

Primary OutFlow Max=3.30 cfs @ 12.13 hrs HW=49.67' (Free Discharge)

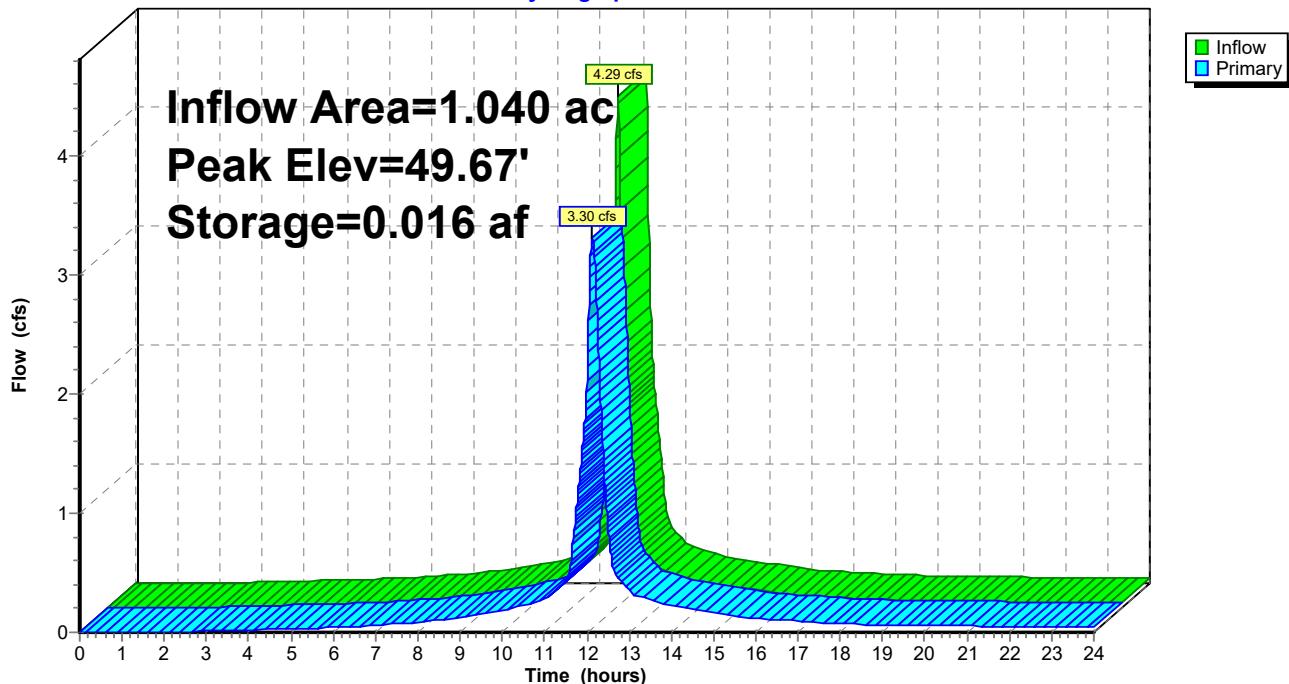
↑ 1=Culvert (Passes 3.30 cfs of 6.41 cfs potential flow)

↑ 2=Internal DVS Orifice Openings to Vortex Tubes (x2)(Orifice Controls 3.30 cfs @ 4.73 fps)

3=Internal DVS Weir (Controls 0.00 cfs)

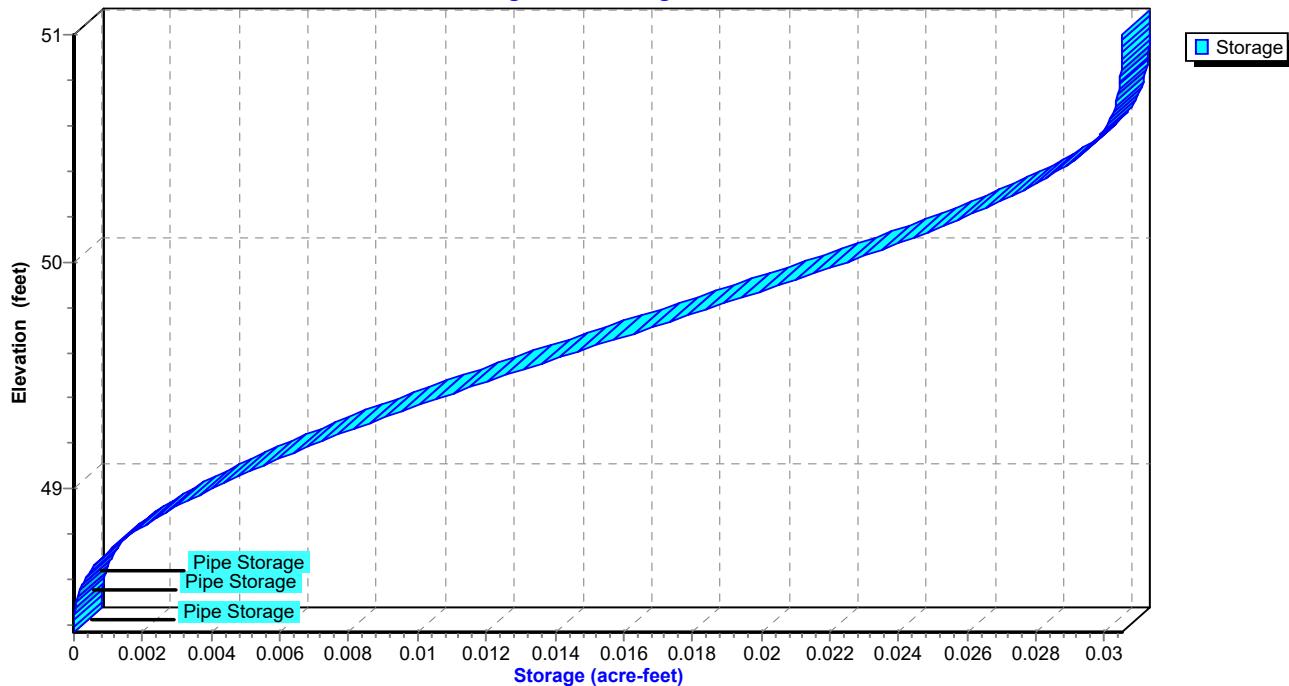
Pond 2: Hydrodynamic Separator

Hydrograph



Pond 2: Hydrodynamic Separator

Stage-Area-Storage



Hydrograph for Pond 2: Hydrodynamic Separator

Time (hours)	Inflow (cfs)	Storage (acre-feet)	Elevation (feet)	Primary (cfs)
0.00	0.00	0.000	48.37	0.00
0.50	0.00	0.000	48.37	0.00
1.00	0.00	0.000	48.37	0.00
1.50	0.00	0.000	48.37	0.00
2.00	0.00	0.000	48.37	0.00
2.50	0.00	0.000	48.39	0.00
3.00	0.01	0.000	48.40	0.01
3.50	0.01	0.000	48.41	0.01
4.00	0.02	0.000	48.42	0.02
4.50	0.02	0.000	48.43	0.02
5.00	0.03	0.000	48.43	0.03
5.50	0.03	0.000	48.44	0.03
6.00	0.04	0.000	48.44	0.04
6.50	0.05	0.000	48.45	0.05
7.00	0.06	0.000	48.46	0.06
7.50	0.07	0.000	48.47	0.07
8.00	0.08	0.000	48.48	0.08
8.50	0.10	0.000	48.49	0.10
9.00	0.13	0.000	48.51	0.13
9.50	0.15	0.000	48.52	0.15
10.00	0.18	0.000	48.53	0.18
10.50	0.23	0.000	48.55	0.23
11.00	0.28	0.000	48.57	0.28
11.50	0.45	0.000	48.63	0.45
12.00	2.88	0.005	49.10	2.12
12.50	0.80	0.001	48.77	0.92
13.00	0.35	0.000	48.60	0.35
13.50	0.27	0.000	48.57	0.27
14.00	0.22	0.000	48.55	0.22
14.50	0.19	0.000	48.54	0.19
15.00	0.17	0.000	48.53	0.17
15.50	0.14	0.000	48.51	0.14
16.00	0.12	0.000	48.50	0.12
16.50	0.10	0.000	48.49	0.10
17.00	0.09	0.000	48.48	0.09
17.50	0.08	0.000	48.48	0.08
18.00	0.07	0.000	48.47	0.07
18.50	0.07	0.000	48.47	0.07
19.00	0.06	0.000	48.46	0.06
19.50	0.06	0.000	48.46	0.06
20.00	0.06	0.000	48.46	0.06
20.50	0.05	0.000	48.46	0.05
21.00	0.05	0.000	48.45	0.05
21.50	0.05	0.000	48.45	0.05
22.00	0.05	0.000	48.45	0.05
22.50	0.04	0.000	48.45	0.04
23.00	0.04	0.000	48.45	0.04
23.50	0.04	0.000	48.44	0.04
24.00	0.04	0.000	48.44	0.04

Stage-Area-Storage for Pond 2: Hydrodynamic Separator

Elevation (feet)	Storage (acre-feet)	Elevation (feet)	Storage (acre-feet)	Elevation (feet)	Storage (acre-feet)
48.37	0.000	49.41	0.011	50.45	0.029
48.39	0.000	49.43	0.011	50.47	0.029
48.41	0.000	49.45	0.012	50.49	0.029
48.43	0.000	49.47	0.012	50.51	0.030
48.45	0.000	49.49	0.012	50.53	0.030
48.47	0.000	49.51	0.013	50.55	0.030
48.49	0.000	49.53	0.013	50.57	0.030
48.51	0.000	49.55	0.014	50.59	0.030
48.53	0.000	49.57	0.014	50.61	0.030
48.55	0.000	49.59	0.014	50.63	0.030
48.57	0.000	49.61	0.015	50.65	0.030
48.59	0.000	49.63	0.015	50.67	0.030
48.61	0.000	49.65	0.016	50.69	0.030
48.63	0.000	49.67	0.016	50.71	0.030
48.65	0.001	49.69	0.016	50.73	0.030
48.67	0.001	49.71	0.017	50.75	0.030
48.69	0.001	49.73	0.017	50.77	0.030
48.71	0.001	49.75	0.018	50.79	0.030
48.73	0.001	49.77	0.018	50.81	0.030
48.75	0.001	49.79	0.018	50.83	0.030
48.77	0.001	49.81	0.019	50.85	0.030
48.79	0.002	49.83	0.019	50.87	0.030
48.81	0.002	49.85	0.020	50.89	0.030
48.83	0.002	49.87	0.020	50.91	0.030
48.85	0.002	49.89	0.020	50.93	0.030
48.87	0.002	49.91	0.021	50.95	0.030
48.89	0.003	49.93	0.021	50.97	0.030
48.91	0.003	49.95	0.022	50.99	0.030
48.93	0.003	49.97	0.022		
48.95	0.003	49.99	0.022		
48.97	0.004	50.01	0.023		
48.99	0.004	50.03	0.023		
49.01	0.004	50.05	0.023		
49.03	0.004	50.07	0.024		
49.05	0.005	50.09	0.024		
49.07	0.005	50.11	0.024		
49.09	0.005	50.13	0.025		
49.11	0.006	50.15	0.025		
49.13	0.006	50.17	0.025		
49.15	0.006	50.19	0.026		
49.17	0.007	50.21	0.026		
49.19	0.007	50.23	0.026		
49.21	0.007	50.25	0.027		
49.23	0.008	50.27	0.027		
49.25	0.008	50.29	0.027		
49.27	0.008	50.31	0.028		
49.29	0.009	50.33	0.028		
49.31	0.009	50.35	0.028		
49.33	0.009	50.37	0.028		
49.35	0.010	50.39	0.029		
49.37	0.010	50.41	0.029		
49.39	0.010	50.43	0.029		

Summary for Link 4L: COMBINED

Inflow Area = 1.270 ac, 71.65% Impervious, Inflow Depth > 3.43" for 5-YR event

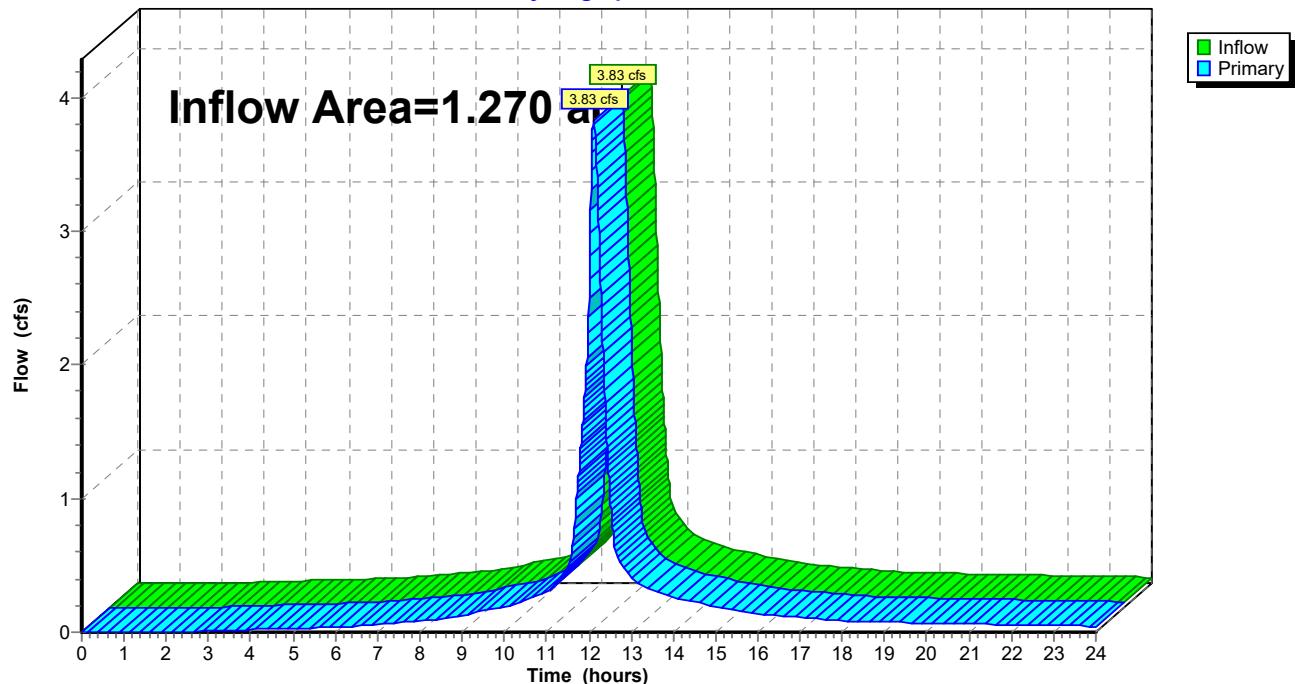
Inflow = 3.83 cfs @ 12.11 hrs, Volume= 0.363 af

Primary = 3.83 cfs @ 12.11 hrs, Volume= 0.363 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs

Link 4L: COMBINED

Hydrograph



Hydrograph for Link 4L: COMBINED

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00	0.00	0.00
0.50	0.00	0.00	0.00
1.00	0.00	0.00	0.00
1.50	0.00	0.00	0.00
2.00	0.00	0.00	0.00
2.50	0.00	0.00	0.00
3.00	0.01	0.00	0.01
3.50	0.01	0.00	0.01
4.00	0.02	0.00	0.02
4.50	0.02	0.00	0.02
5.00	0.03	0.00	0.03
5.50	0.03	0.00	0.03
6.00	0.04	0.00	0.04
6.50	0.05	0.00	0.05
7.00	0.06	0.00	0.06
7.50	0.07	0.00	0.07
8.00	0.08	0.00	0.08
8.50	0.10	0.00	0.10
9.00	0.13	0.00	0.13
9.50	0.16	0.00	0.16
10.00	0.19	0.00	0.19
10.50	0.24	0.00	0.24
11.00	0.30	0.00	0.30
11.50	0.49	0.00	0.49
12.00	2.50	0.00	2.50
12.50	1.05	0.00	1.05
13.00	0.41	0.00	0.41
13.50	0.32	0.00	0.32
14.00	0.26	0.00	0.26
14.50	0.23	0.00	0.23
15.00	0.20	0.00	0.20
15.50	0.17	0.00	0.17
16.00	0.14	0.00	0.14
16.50	0.12	0.00	0.12
17.00	0.11	0.00	0.11
17.50	0.10	0.00	0.10
18.00	0.08	0.00	0.08
18.50	0.08	0.00	0.08
19.00	0.07	0.00	0.07
19.50	0.07	0.00	0.07
20.00	0.07	0.00	0.07
20.50	0.06	0.00	0.06
21.00	0.06	0.00	0.06
21.50	0.06	0.00	0.06
22.00	0.06	0.00	0.06
22.50	0.05	0.00	0.05
23.00	0.05	0.00	0.05
23.50	0.05	0.00	0.05
24.00	0.04	0.00	0.04

100260-01-001 HYDRO

Prepared by Bowman Consulting

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Type III 24-hr 10-YR Rainfall=5.02"

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Time span=0.00-24.00 hrs, dt=0.01 hrs, 2401 points

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN

Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

SubcatchmentBYPASS: BYPASSRunoff Area=0.230 ac 0.00% Impervious Runoff Depth>2.91"
Tc=5.0 min CN=80 Runoff=0.81 cfs 0.056 af**SubcatchmentSITE: POST-DEV**Runoff Area=1.040 ac 87.50% Impervious Runoff Depth>4.55"
Tc=5.0 min CN=96 Runoff=5.21 cfs 0.394 af**Pond 2: HydrodynamicSeparator**Peak Elev=49.97' Storage=0.022 af Inflow=5.21 cfs 0.394 af
Outflow=4.10 cfs 0.394 af**Link 4L: COMBINED**Inflow=4.77 cfs 0.450 af
Primary=4.77 cfs 0.450 af**Total Runoff Area = 1.270 ac Runoff Volume = 0.450 af Average Runoff Depth = 4.25"**
28.35% Pervious = 0.360 ac 71.65% Impervious = 0.910 ac

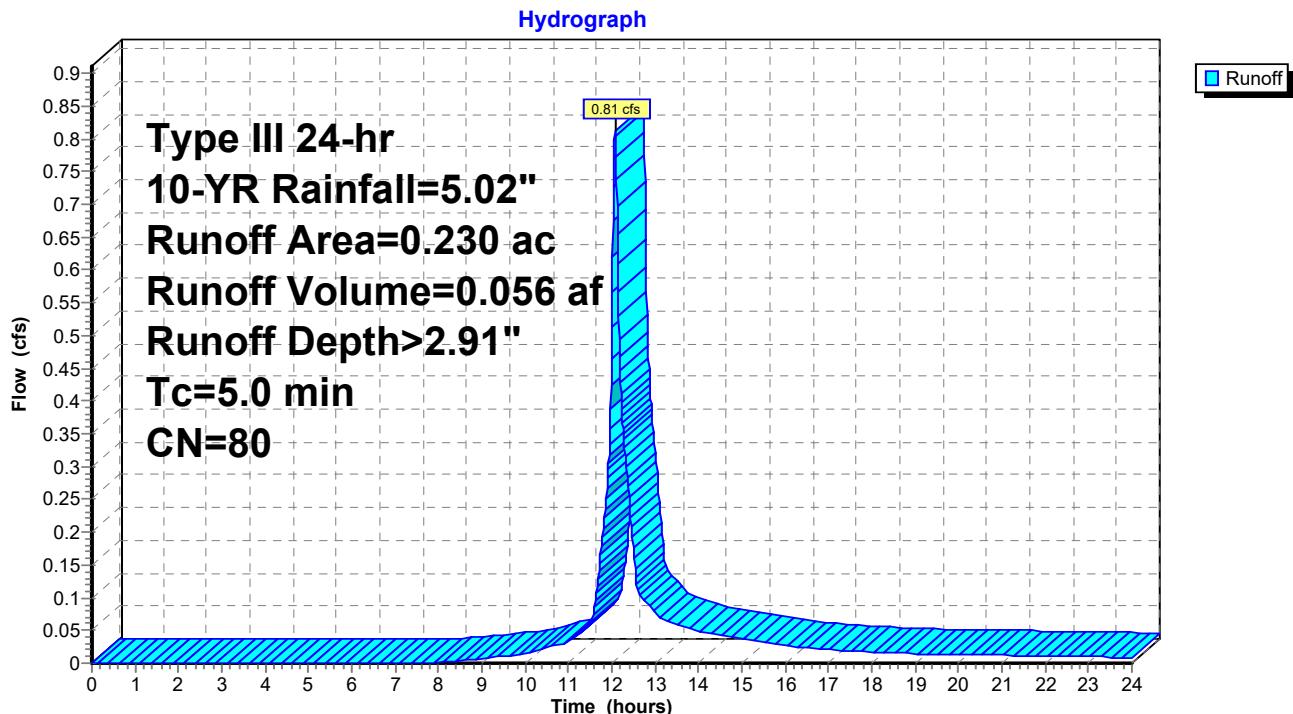
Summary for Subcatchment BYPASS: BYPASS

Runoff = 0.81 cfs @ 12.07 hrs, Volume= 0.056 af, Depth> 2.91"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-YR Rainfall=5.02"

Area (ac)	CN	Description
* 0.230	80	
0.230		100.00% Pervious Area

Tc	Length	Slope	Velocity	Capacity	Description
(min)	(feet)	(ft/ft)	(ft/sec)	(cfs)	
5.0				Direct Entry,	

Subcatchment BYPASS: BYPASS

Hydrograph for Subcatchment BYPASS: BYPASS

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
0.50	0.03	0.00	0.00
1.00	0.05	0.00	0.00
1.50	0.08	0.00	0.00
2.00	0.10	0.00	0.00
2.50	0.13	0.00	0.00
3.00	0.15	0.00	0.00
3.50	0.18	0.00	0.00
4.00	0.22	0.00	0.00
4.50	0.25	0.00	0.00
5.00	0.28	0.00	0.00
5.50	0.32	0.00	0.00
6.00	0.36	0.00	0.00
6.50	0.40	0.00	0.00
7.00	0.45	0.00	0.00
7.50	0.51	0.00	0.00
8.00	0.57	0.00	0.00
8.50	0.64	0.01	0.00
9.00	0.73	0.02	0.01
9.50	0.83	0.04	0.01
10.00	0.95	0.07	0.02
10.50	1.09	0.11	0.02
11.00	1.25	0.18	0.03
11.50	1.50	0.28	0.06
12.00	2.51	0.90	0.51
12.50	3.52	1.66	0.17
13.00	3.76	1.85	0.08
13.50	3.93	1.99	0.06
14.00	4.07	2.10	0.05
14.50	4.19	2.20	0.04
15.00	4.29	2.28	0.04
15.50	4.38	2.36	0.03
16.00	4.45	2.42	0.03
16.50	4.51	2.47	0.02
17.00	4.57	2.52	0.02
17.50	4.62	2.56	0.02
18.00	4.66	2.60	0.02
18.50	4.70	2.63	0.02
19.00	4.74	2.66	0.01
19.50	4.77	2.69	0.01
20.00	4.80	2.72	0.01
20.50	4.84	2.75	0.01
21.00	4.87	2.78	0.01
21.50	4.90	2.80	0.01
22.00	4.92	2.83	0.01
22.50	4.95	2.85	0.01
23.00	4.97	2.87	0.01
23.50	5.00	2.89	0.01
24.00	5.02	2.91	0.01

Summary for Subcatchment SITE: POST-DEV

Runoff = 5.21 cfs @ 12.07 hrs, Volume= 0.394 af, Depth> 4.55"

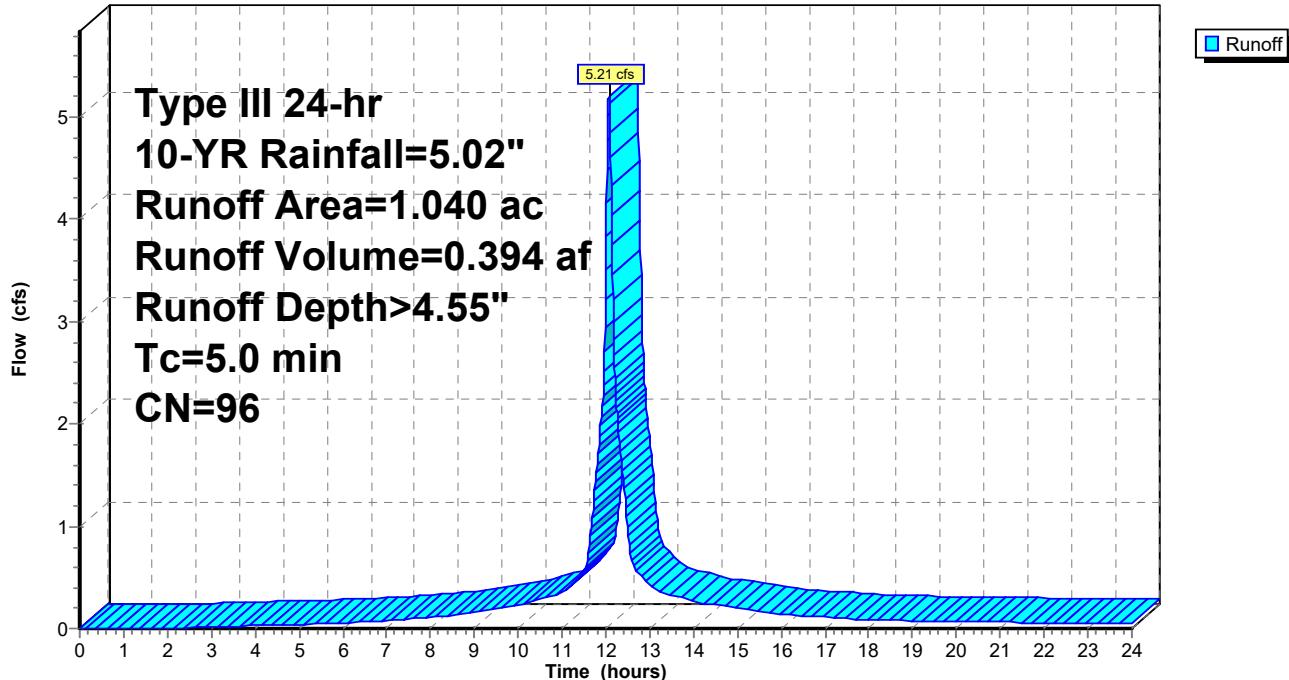
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
 Type III 24-hr 10-YR Rainfall=5.02"

Area (ac)	CN	Description
*	0.910	98
*	0.130	80
1.040	96	Weighted Average
0.130		12.50% Pervious Area
0.910		87.50% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0	Direct Entry,				

Subcatchment SITE: POST-DEV

Hydrograph



100260-01-001 HYDRO

Prepared by Bowman Consulting

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Type III 24-hr 10-YR Rainfall=5.02"

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Hydrograph for Subcatchment SITE: POST-DEV

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
0.50	0.03	0.00	0.00
1.00	0.05	0.00	0.00
1.50	0.08	0.00	0.00
2.00	0.10	0.00	0.00
2.50	0.13	0.00	0.01
3.00	0.15	0.01	0.02
3.50	0.18	0.02	0.02
4.00	0.22	0.03	0.03
4.50	0.25	0.05	0.03
5.00	0.28	0.07	0.04
5.50	0.32	0.09	0.05
6.00	0.36	0.11	0.05
6.50	0.40	0.14	0.06
7.00	0.45	0.17	0.08
7.50	0.51	0.22	0.09
8.00	0.57	0.26	0.11
8.50	0.64	0.32	0.13
9.00	0.73	0.39	0.16
9.50	0.83	0.48	0.19
10.00	0.95	0.58	0.23
10.50	1.09	0.71	0.28
11.00	1.25	0.86	0.35
11.50	1.50	1.09	0.56
12.00	2.51	2.07	3.51
12.50	3.52	3.07	0.97
13.00	3.76	3.31	0.42
13.50	3.93	3.47	0.33
14.00	4.07	3.61	0.27
14.50	4.19	3.73	0.23
15.00	4.29	3.83	0.20
15.50	4.38	3.91	0.17
16.00	4.45	3.98	0.14
16.50	4.51	4.05	0.12
17.00	4.57	4.10	0.11
17.50	4.62	4.15	0.10
18.00	4.66	4.19	0.09
18.50	4.70	4.23	0.08
19.00	4.74	4.27	0.08
19.50	4.77	4.30	0.07
20.00	4.80	4.34	0.07
20.50	4.84	4.37	0.07
21.00	4.87	4.40	0.06
21.50	4.90	4.43	0.06
22.00	4.92	4.46	0.06
22.50	4.95	4.48	0.05
23.00	4.97	4.51	0.05
23.50	5.00	4.53	0.05
24.00	5.02	4.55	0.04

Summary for Pond 2: Hydrodynamic Separator

Inflow Area = 1.040 ac, 87.50% Impervious, Inflow Depth > 4.55" for 10-YR event
 Inflow = 5.21 cfs @ 12.07 hrs, Volume= 0.394 af
 Outflow = 4.10 cfs @ 12.13 hrs, Volume= 0.394 af, Atten= 21%, Lag= 3.5 min
 Primary = 4.10 cfs @ 12.13 hrs, Volume= 0.394 af

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
 Peak Elev= 49.97' @ 12.13 hrs Surf.Area= 0.019 ac Storage= 0.022 af

Plug-Flow detention time= 1.4 min calculated for 0.394 af (100% of inflow)
 Center-of-Mass det. time= 1.4 min (762.3 - 760.9)

Volume	Invert	Avail.Storage	Storage Description
#1	48.37'	0.009 af	24.0" Round Pipe Storage L= 128.9' S= 0.0015 '/"
#2	48.50'	0.014 af	24.0" Round Pipe Storage L= 191.2' S= 0.0015 '/"
#3	48.59'	0.007 af	18.0" Round Pipe Storage L= 182.7' S= 0.0050 '/"
			0.030 af Total Available Storage

Device	Routing	Invert	Outlet Devices
#1	Primary	48.27'	24.0" Round Culvert L= 13.3' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 48.27' / 48.25' S= 0.0015 '/' Cc= 0.900 n= 0.011 Concrete pipe, straight & clean, Flow Area= 3.14 sf
#2	Device 1	48.37'	8.0" Vert. Internal DVS Orifice Openings to Vortex Tubes (x2) X 2.00 C= 0.600
#3	Device 1	49.87'	3.0" long Internal DVS Weir 2 End Contraction(s)

Primary OutFlow Max=4.09 cfs @ 12.13 hrs HW=49.97' (Free Discharge)

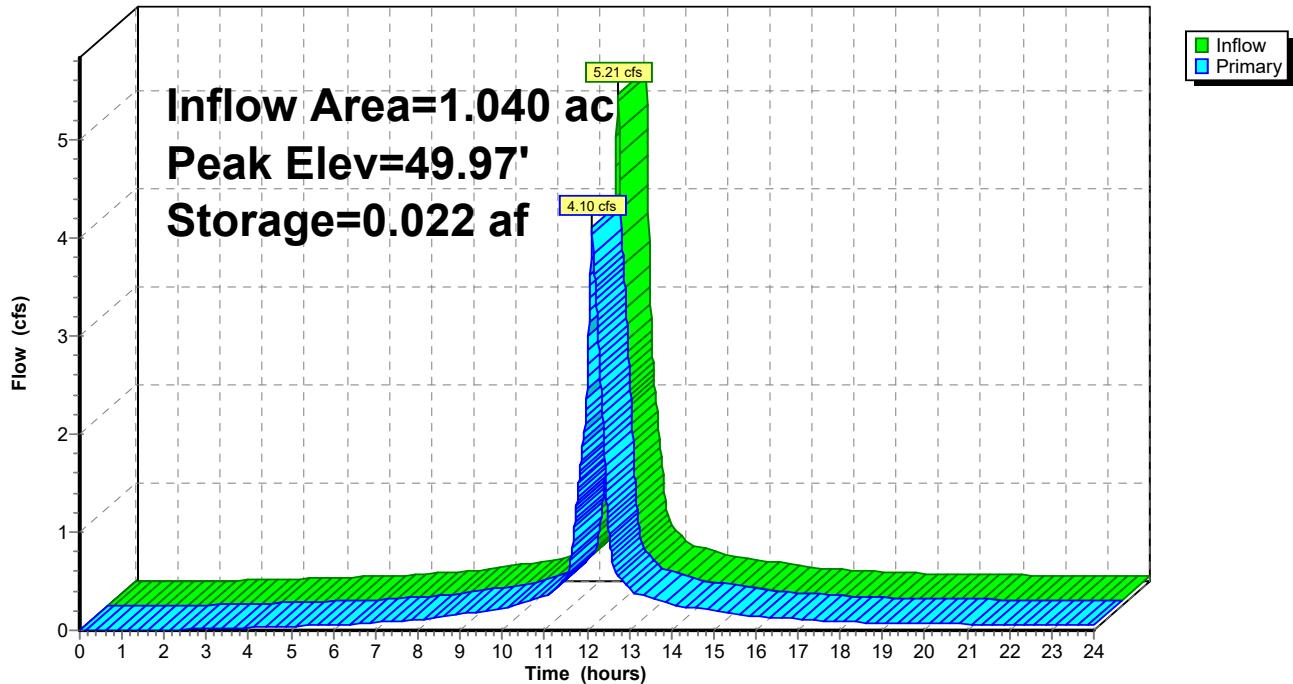
↑ 1=Culvert (Passes 4.09 cfs of 8.95 cfs potential flow)

↑ 2=Internal DVS Orifice Openings to Vortex Tubes (x2)(Orifice Controls 3.78 cfs @ 5.42 fps)

↑ 3=Internal DVS Weir (Weir Controls 0.31 cfs @ 1.03 fps)

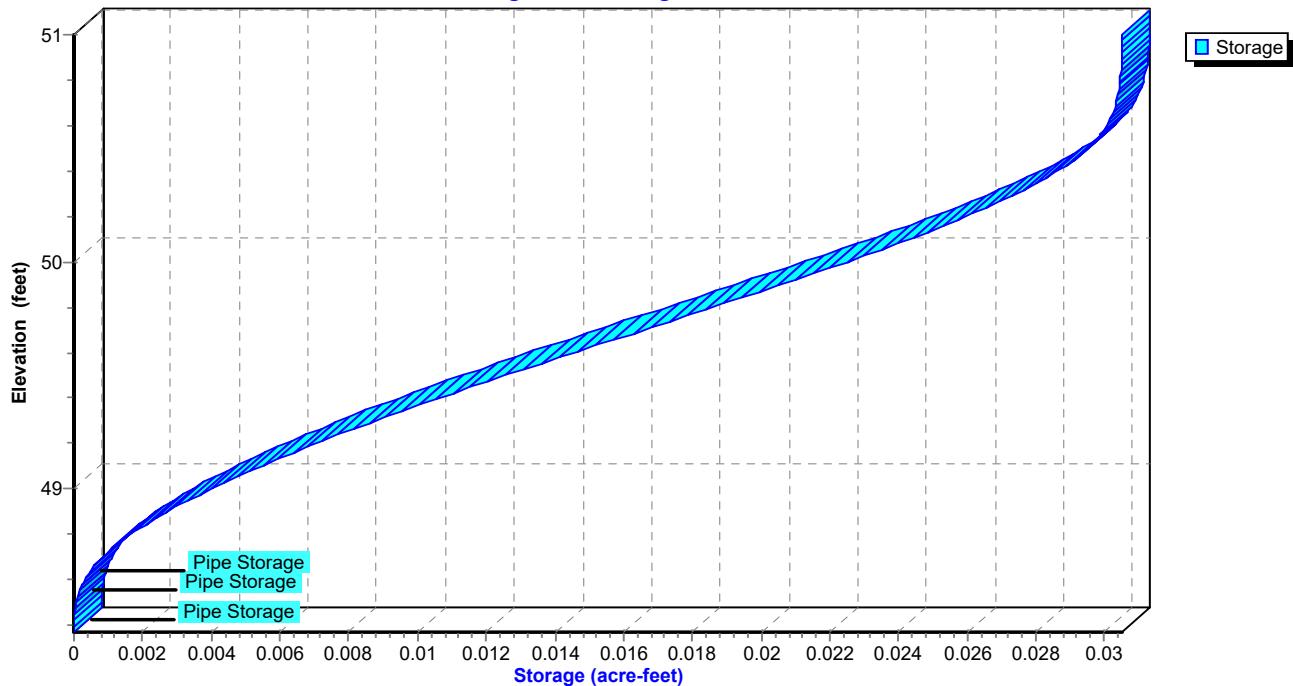
Pond 2: Hydrodynamic Separator

Hydrograph



Pond 2: Hydrodynamic Separator

Stage-Area-Storage



Hydrograph for Pond 2: Hydrodynamic Separator

Time (hours)	Inflow (cfs)	Storage (acre-feet)	Elevation (feet)	Primary (cfs)
0.00	0.00	0.000	48.37	0.00
0.50	0.00	0.000	48.37	0.00
1.00	0.00	0.000	48.37	0.00
1.50	0.00	0.000	48.37	0.00
2.00	0.00	0.000	48.39	0.00
2.50	0.01	0.000	48.40	0.01
3.00	0.02	0.000	48.41	0.02
3.50	0.02	0.000	48.42	0.02
4.00	0.03	0.000	48.43	0.03
4.50	0.03	0.000	48.44	0.03
5.00	0.04	0.000	48.44	0.04
5.50	0.05	0.000	48.45	0.05
6.00	0.05	0.000	48.46	0.05
6.50	0.06	0.000	48.46	0.06
7.00	0.08	0.000	48.47	0.08
7.50	0.09	0.000	48.48	0.09
8.00	0.11	0.000	48.49	0.11
8.50	0.13	0.000	48.51	0.13
9.00	0.16	0.000	48.52	0.16
9.50	0.19	0.000	48.54	0.19
10.00	0.23	0.000	48.55	0.22
10.50	0.28	0.000	48.58	0.28
11.00	0.35	0.000	48.60	0.35
11.50	0.56	0.001	48.66	0.55
12.00	3.51	0.008	49.24	2.46
12.50	0.97	0.002	48.83	1.14
13.00	0.42	0.000	48.63	0.43
13.50	0.33	0.000	48.59	0.33
14.00	0.27	0.000	48.57	0.27
14.50	0.23	0.000	48.55	0.23
15.00	0.20	0.000	48.54	0.20
15.50	0.17	0.000	48.53	0.17
16.00	0.14	0.000	48.51	0.14
16.50	0.12	0.000	48.50	0.13
17.00	0.11	0.000	48.50	0.11
17.50	0.10	0.000	48.49	0.10
18.00	0.09	0.000	48.48	0.09
18.50	0.08	0.000	48.48	0.08
19.00	0.08	0.000	48.47	0.08
19.50	0.07	0.000	48.47	0.07
20.00	0.07	0.000	48.47	0.07
20.50	0.07	0.000	48.47	0.07
21.00	0.06	0.000	48.46	0.06
21.50	0.06	0.000	48.46	0.06
22.00	0.06	0.000	48.46	0.06
22.50	0.05	0.000	48.46	0.05
23.00	0.05	0.000	48.45	0.05
23.50	0.05	0.000	48.45	0.05
24.00	0.04	0.000	48.45	0.04

Stage-Area-Storage for Pond 2: Hydrodynamic Separator

Elevation (feet)	Storage (acre-feet)	Elevation (feet)	Storage (acre-feet)	Elevation (feet)	Storage (acre-feet)
48.37	0.000	49.41	0.011	50.45	0.029
48.39	0.000	49.43	0.011	50.47	0.029
48.41	0.000	49.45	0.012	50.49	0.029
48.43	0.000	49.47	0.012	50.51	0.030
48.45	0.000	49.49	0.012	50.53	0.030
48.47	0.000	49.51	0.013	50.55	0.030
48.49	0.000	49.53	0.013	50.57	0.030
48.51	0.000	49.55	0.014	50.59	0.030
48.53	0.000	49.57	0.014	50.61	0.030
48.55	0.000	49.59	0.014	50.63	0.030
48.57	0.000	49.61	0.015	50.65	0.030
48.59	0.000	49.63	0.015	50.67	0.030
48.61	0.000	49.65	0.016	50.69	0.030
48.63	0.000	49.67	0.016	50.71	0.030
48.65	0.001	49.69	0.016	50.73	0.030
48.67	0.001	49.71	0.017	50.75	0.030
48.69	0.001	49.73	0.017	50.77	0.030
48.71	0.001	49.75	0.018	50.79	0.030
48.73	0.001	49.77	0.018	50.81	0.030
48.75	0.001	49.79	0.018	50.83	0.030
48.77	0.001	49.81	0.019	50.85	0.030
48.79	0.002	49.83	0.019	50.87	0.030
48.81	0.002	49.85	0.020	50.89	0.030
48.83	0.002	49.87	0.020	50.91	0.030
48.85	0.002	49.89	0.020	50.93	0.030
48.87	0.002	49.91	0.021	50.95	0.030
48.89	0.003	49.93	0.021	50.97	0.030
48.91	0.003	49.95	0.022	50.99	0.030
48.93	0.003	49.97	0.022		
48.95	0.003	49.99	0.022		
48.97	0.004	50.01	0.023		
48.99	0.004	50.03	0.023		
49.01	0.004	50.05	0.023		
49.03	0.004	50.07	0.024		
49.05	0.005	50.09	0.024		
49.07	0.005	50.11	0.024		
49.09	0.005	50.13	0.025		
49.11	0.006	50.15	0.025		
49.13	0.006	50.17	0.025		
49.15	0.006	50.19	0.026		
49.17	0.007	50.21	0.026		
49.19	0.007	50.23	0.026		
49.21	0.007	50.25	0.027		
49.23	0.008	50.27	0.027		
49.25	0.008	50.29	0.027		
49.27	0.008	50.31	0.028		
49.29	0.009	50.33	0.028		
49.31	0.009	50.35	0.028		
49.33	0.009	50.37	0.028		
49.35	0.010	50.39	0.029		
49.37	0.010	50.41	0.029		
49.39	0.010	50.43	0.029		

Summary for Link 4L: COMBINED

Inflow Area = 1.270 ac, 71.65% Impervious, Inflow Depth > 4.25" for 10-YR event

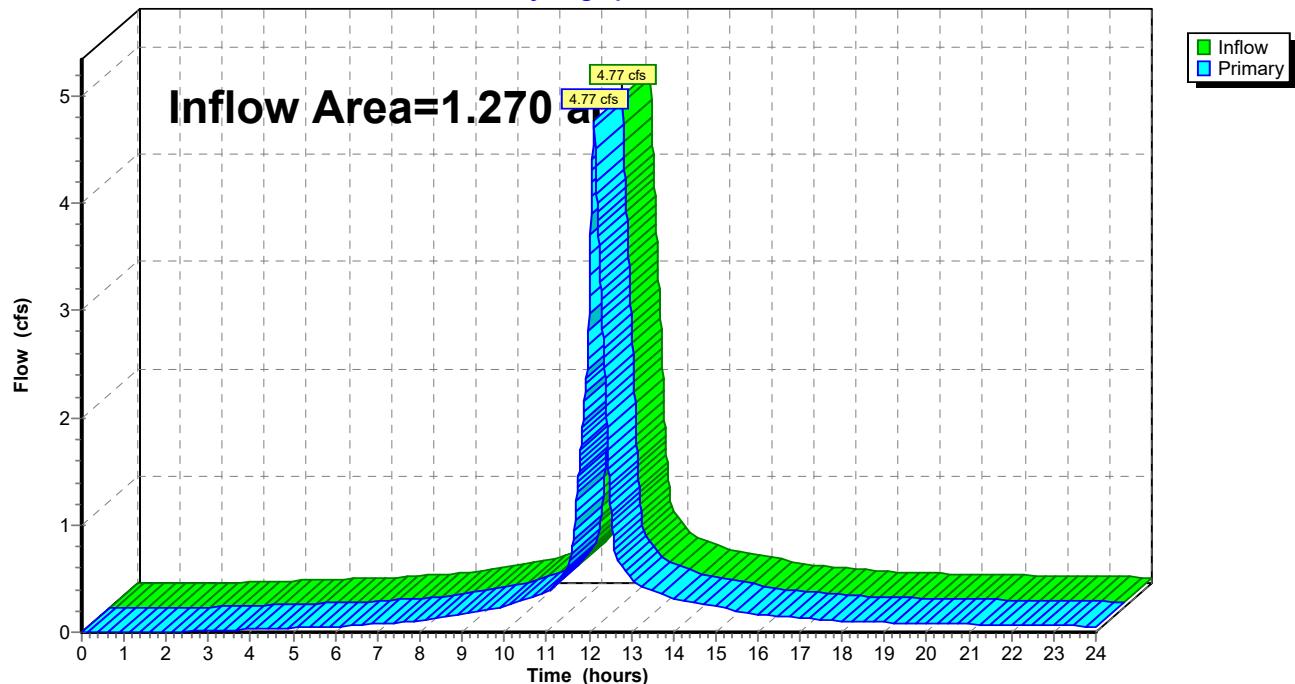
Inflow = 4.77 cfs @ 12.12 hrs, Volume= 0.450 af

Primary = 4.77 cfs @ 12.12 hrs, Volume= 0.450 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs

Link 4L: COMBINED

Hydrograph



Hydrograph for Link 4L: COMBINED

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00	0.00	0.00
0.50	0.00	0.00	0.00
1.00	0.00	0.00	0.00
1.50	0.00	0.00	0.00
2.00	0.00	0.00	0.00
2.50	0.01	0.00	0.01
3.00	0.02	0.00	0.02
3.50	0.02	0.00	0.02
4.00	0.03	0.00	0.03
4.50	0.03	0.00	0.03
5.00	0.04	0.00	0.04
5.50	0.05	0.00	0.05
6.00	0.05	0.00	0.05
6.50	0.06	0.00	0.06
7.00	0.08	0.00	0.08
7.50	0.09	0.00	0.09
8.00	0.11	0.00	0.11
8.50	0.14	0.00	0.14
9.00	0.17	0.00	0.17
9.50	0.20	0.00	0.20
10.00	0.24	0.00	0.24
10.50	0.30	0.00	0.30
11.00	0.38	0.00	0.38
11.50	0.61	0.00	0.61
12.00	2.97	0.00	2.97
12.50	1.32	0.00	1.32
13.00	0.50	0.00	0.50
13.50	0.39	0.00	0.39
14.00	0.32	0.00	0.32
14.50	0.27	0.00	0.27
15.00	0.24	0.00	0.24
15.50	0.20	0.00	0.20
16.00	0.17	0.00	0.17
16.50	0.15	0.00	0.15
17.00	0.13	0.00	0.13
17.50	0.12	0.00	0.12
18.00	0.10	0.00	0.10
18.50	0.10	0.00	0.10
19.00	0.09	0.00	0.09
19.50	0.09	0.00	0.09
20.00	0.08	0.00	0.08
20.50	0.08	0.00	0.08
21.00	0.07	0.00	0.07
21.50	0.07	0.00	0.07
22.00	0.07	0.00	0.07
22.50	0.06	0.00	0.06
23.00	0.06	0.00	0.06
23.50	0.06	0.00	0.06
24.00	0.05	0.00	0.05

100260-01-001 HYDRO

Prepared by Bowman Consulting

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Type III 24-hr 25-YR Rainfall=6.20"

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Time span=0.00-24.00 hrs, dt=0.01 hrs, 2401 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

SubcatchmentBYPASS: BYPASS

Runoff Area=0.230 ac 0.00% Impervious Runoff Depth>3.96"
Tc=5.0 min CN=80 Runoff=1.10 cfs 0.076 af

SubcatchmentSITE: POST-DEV

Runoff Area=1.040 ac 87.50% Impervious Runoff Depth>5.72"
Tc=5.0 min CN=96 Runoff=6.48 cfs 0.496 af

Pond 2: HydrodynamicSeparator

Peak Elev=50.20' Storage=0.026 af Inflow=6.48 cfs 0.496 af
Outflow=5.90 cfs 0.496 af

Link 4L: COMBINED

Inflow=6.92 cfs 0.572 af
Primary=6.92 cfs 0.572 af

Total Runoff Area = 1.270 ac Runoff Volume = 0.572 af Average Runoff Depth = 5.40"
28.35% Pervious = 0.360 ac 71.65% Impervious = 0.910 ac

Summary for Subcatchment BYPASS: BYPASS

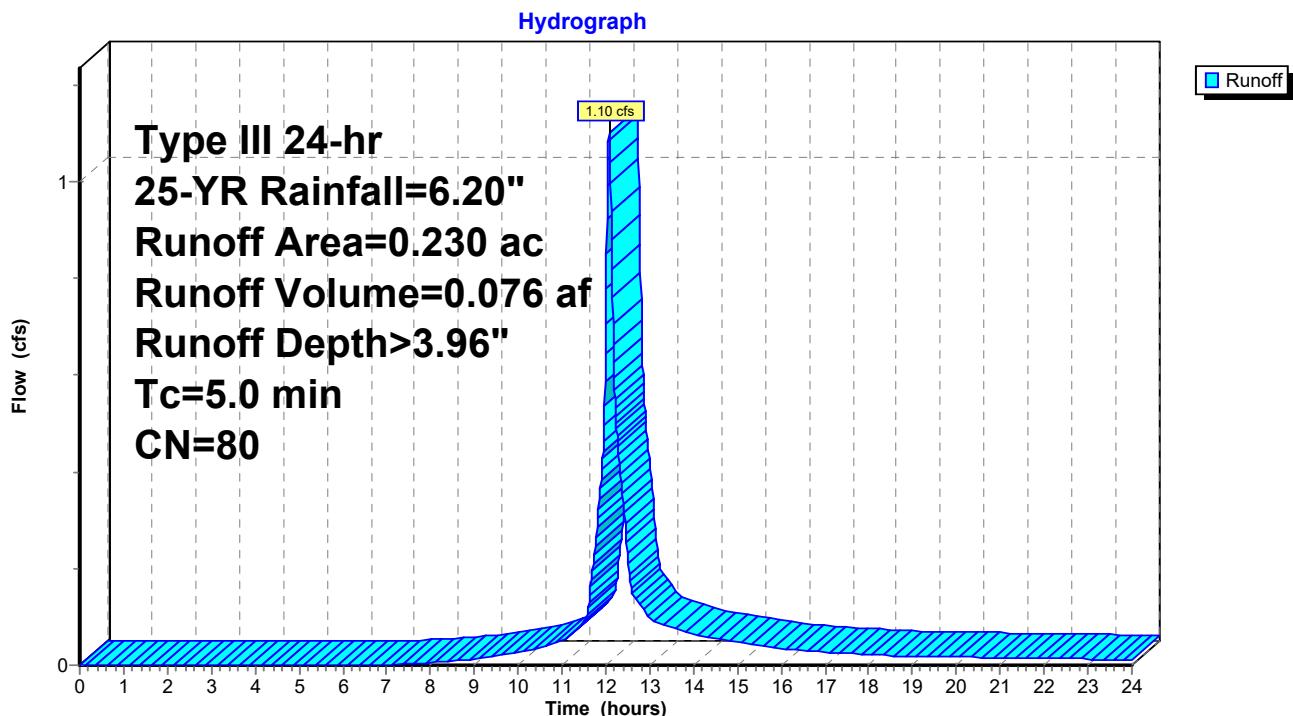
Runoff = 1.10 cfs @ 12.07 hrs, Volume= 0.076 af, Depth> 3.96"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-YR Rainfall=6.20"

Area (ac)	CN	Description
* 0.230	80	

0.230 100.00% Pervious Area

Tc	Length	Slope	Velocity	Capacity	Description
(min)	(feet)	(ft/ft)	(ft/sec)	(cfs)	
5.0	Direct Entry,				

Subcatchment BYPASS: BYPASS

Hydrograph for Subcatchment BYPASS: BYPASS

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
0.50	0.03	0.00	0.00
1.00	0.06	0.00	0.00
1.50	0.09	0.00	0.00
2.00	0.12	0.00	0.00
2.50	0.16	0.00	0.00
3.00	0.19	0.00	0.00
3.50	0.23	0.00	0.00
4.00	0.27	0.00	0.00
4.50	0.31	0.00	0.00
5.00	0.35	0.00	0.00
5.50	0.40	0.00	0.00
6.00	0.45	0.00	0.00
6.50	0.50	0.00	0.00
7.00	0.56	0.00	0.00
7.50	0.63	0.01	0.00
8.00	0.71	0.02	0.01
8.50	0.80	0.03	0.01
9.00	0.90	0.06	0.01
9.50	1.03	0.09	0.02
10.00	1.17	0.14	0.03
10.50	1.34	0.21	0.04
11.00	1.55	0.31	0.05
11.50	1.85	0.47	0.09
12.00	3.10	1.33	0.71
12.50	4.35	2.34	0.23
13.00	4.65	2.59	0.10
13.50	4.86	2.77	0.08
14.00	5.03	2.92	0.06
14.50	5.17	3.04	0.06
15.00	5.30	3.15	0.05
15.50	5.40	3.25	0.04
16.00	5.49	3.33	0.03
16.50	5.57	3.40	0.03
17.00	5.64	3.46	0.03
17.50	5.70	3.51	0.02
18.00	5.75	3.56	0.02
18.50	5.80	3.60	0.02
19.00	5.85	3.64	0.02
19.50	5.89	3.68	0.02
20.00	5.93	3.72	0.02
20.50	5.97	3.76	0.02
21.00	6.01	3.79	0.02
21.50	6.05	3.82	0.01
22.00	6.08	3.85	0.01
22.50	6.11	3.88	0.01
23.00	6.14	3.91	0.01
23.50	6.17	3.94	0.01
24.00	6.20	3.96	0.01

Summary for Subcatchment SITE: POST-DEV

Runoff = 6.48 cfs @ 12.07 hrs, Volume= 0.496 af, Depth> 5.72"

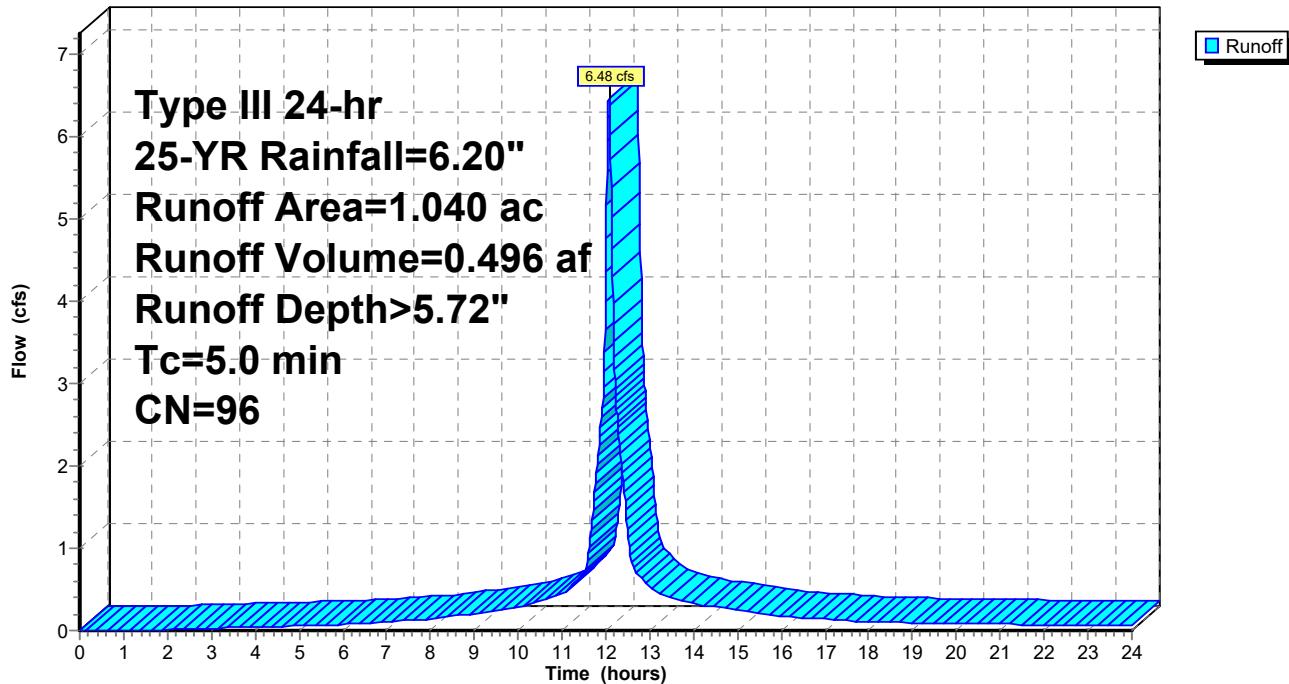
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
 Type III 24-hr 25-YR Rainfall=6.20"

Area (ac)	CN	Description
*	0.910	98
*	0.130	80
1.040	96	Weighted Average
0.130		12.50% Pervious Area
0.910		87.50% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0	Direct Entry,				

Subcatchment SITE: POST-DEV

Hydrograph



Hydrograph for Subcatchment SITE: POST-DEV

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
0.50	0.03	0.00	0.00
1.00	0.06	0.00	0.00
1.50	0.09	0.00	0.00
2.00	0.12	0.00	0.01
2.50	0.16	0.01	0.02
3.00	0.19	0.02	0.03
3.50	0.23	0.04	0.03
4.00	0.27	0.06	0.04
4.50	0.31	0.08	0.05
5.00	0.35	0.11	0.06
5.50	0.40	0.14	0.07
6.00	0.45	0.17	0.07
6.50	0.50	0.21	0.09
7.00	0.56	0.26	0.10
7.50	0.63	0.31	0.12
8.00	0.71	0.37	0.14
8.50	0.80	0.45	0.17
9.00	0.90	0.54	0.21
9.50	1.03	0.66	0.25
10.00	1.17	0.79	0.29
10.50	1.34	0.95	0.36
11.00	1.55	1.14	0.44
11.50	1.85	1.43	0.70
12.00	3.10	2.65	4.37
12.50	4.35	3.89	1.21
13.00	4.65	4.18	0.52
13.50	4.86	4.39	0.41
14.00	5.03	4.56	0.33
14.50	5.17	4.70	0.29
15.00	5.30	4.83	0.25
15.50	5.40	4.93	0.21
16.00	5.49	5.02	0.17
16.50	5.57	5.10	0.15
17.00	5.64	5.17	0.14
17.50	5.70	5.23	0.12
18.00	5.75	5.28	0.11
18.50	5.80	5.33	0.10
19.00	5.85	5.38	0.09
19.50	5.89	5.42	0.09
20.00	5.93	5.46	0.08
20.50	5.97	5.50	0.08
21.00	6.01	5.54	0.08
21.50	6.05	5.57	0.07
22.00	6.08	5.61	0.07
22.50	6.11	5.64	0.07
23.00	6.14	5.67	0.06
23.50	6.17	5.70	0.06
24.00	6.20	5.73	0.06

Summary for Pond 2: Hydrodynamic Separator

Inflow Area = 1.040 ac, 87.50% Impervious, Inflow Depth > 5.72" for 25-YR event
 Inflow = 6.48 cfs @ 12.07 hrs, Volume= 0.496 af
 Outflow = 5.90 cfs @ 12.10 hrs, Volume= 0.496 af, Atten= 9%, Lag= 2.1 min
 Primary = 5.90 cfs @ 12.10 hrs, Volume= 0.496 af

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
 Peak Elev= 50.20' @ 12.10 hrs Surf.Area= 0.016 ac Storage= 0.026 af

Plug-Flow detention time= 1.5 min calculated for 0.496 af (100% of inflow)
 Center-of-Mass det. time= 1.5 min (757.6 - 756.1)

Volume	Invert	Avail.Storage	Storage Description
#1	48.37'	0.009 af	24.0" Round Pipe Storage L= 128.9' S= 0.0015 '/"
#2	48.50'	0.014 af	24.0" Round Pipe Storage L= 191.2' S= 0.0015 '/"
#3	48.59'	0.007 af	18.0" Round Pipe Storage L= 182.7' S= 0.0050 '/"
			0.030 af Total Available Storage

Device	Routing	Invert	Outlet Devices
#1	Primary	48.27'	24.0" Round Culvert L= 13.3' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 48.27' / 48.25' S= 0.0015 '/' Cc= 0.900 n= 0.011 Concrete pipe, straight & clean, Flow Area= 3.14 sf
#2	Device 1	48.37'	8.0" Vert. Internal DVS Orifice Openings to Vortex Tubes (x2) X 2.00 C= 0.600
#3	Device 1	49.87'	3.0" long Internal DVS Weir 2 End Contraction(s)

Primary OutFlow Max=5.88 cfs @ 12.10 hrs HW=50.19' (Free Discharge)

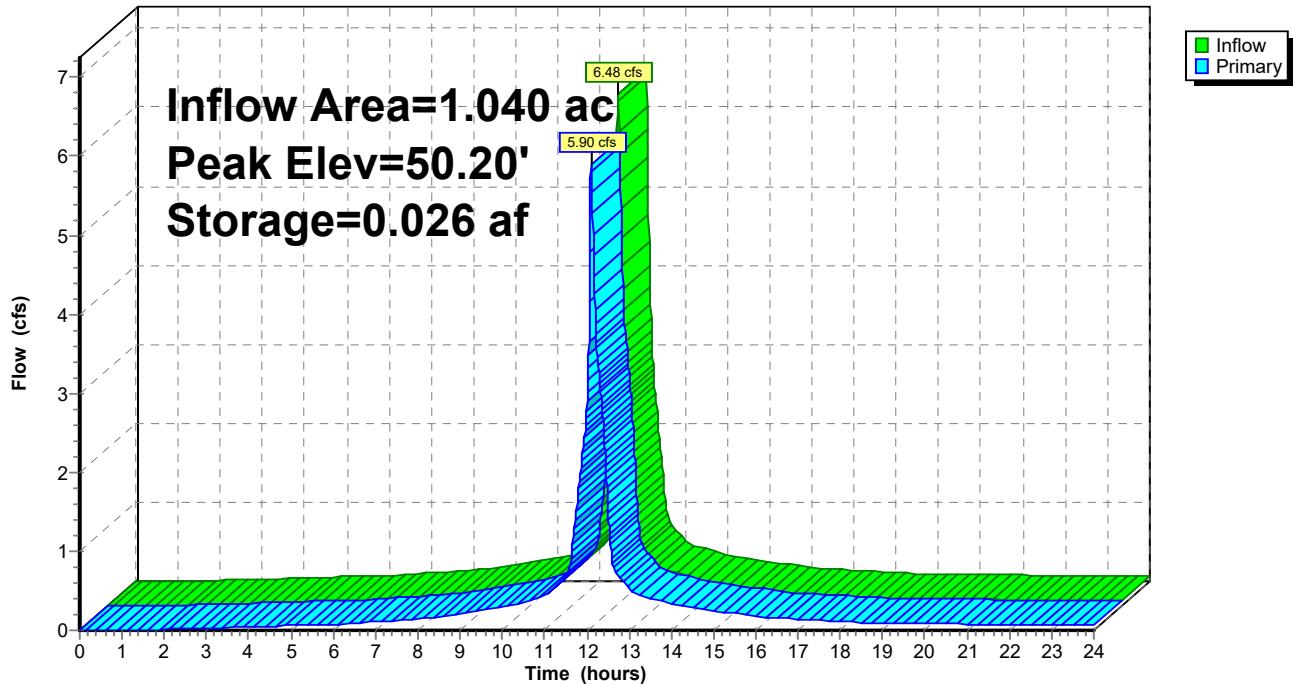
↑ 1=Culvert (Passes 5.88 cfs of 10.92 cfs potential flow)

 ↑ 2=Internal DVS Orifice Openings to Vortex Tubes (x2)(Orifice Controls 4.10 cfs @ 5.88 fps)

 3=Internal DVS Weir (Weir Controls 1.77 cfs @ 1.86 fps)

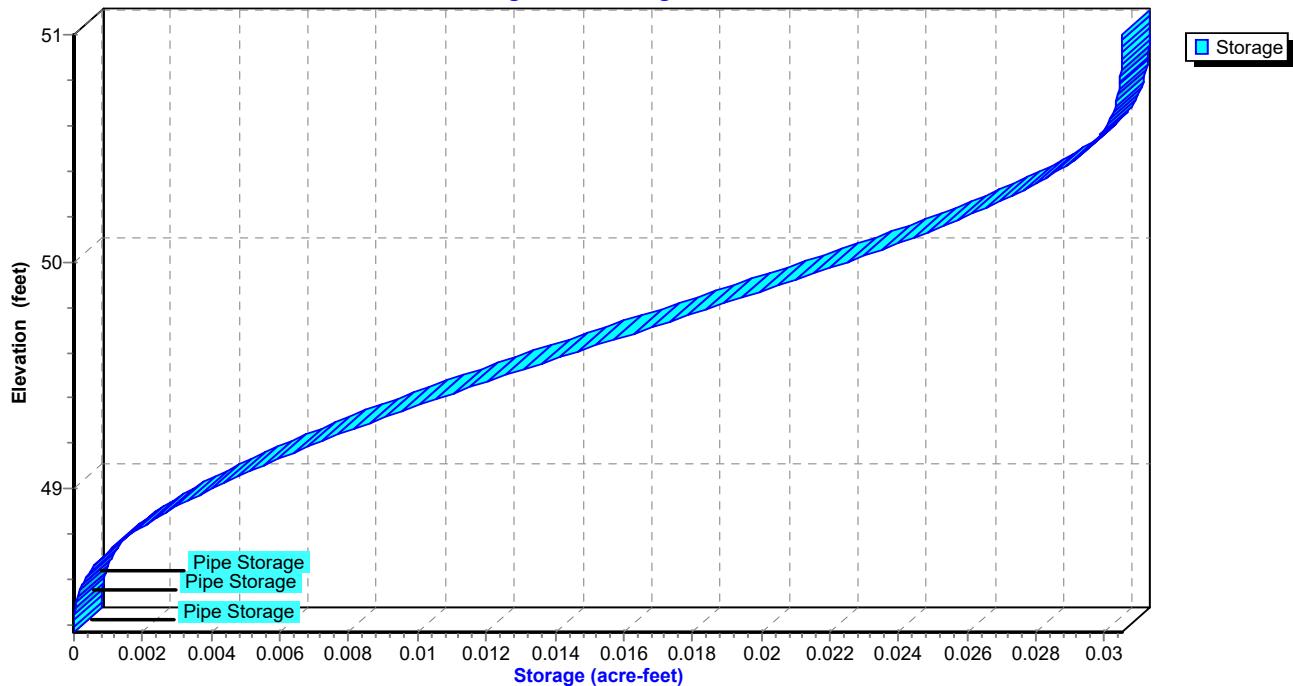
Pond 2: Hydrodynamic Separator

Hydrograph



Pond 2: Hydrodynamic Separator

Stage-Area-Storage



Hydrograph for Pond 2: Hydrodynamic Separator

Time (hours)	Inflow (cfs)	Storage (acre-feet)	Elevation (feet)	Primary (cfs)
0.00	0.00	0.000	48.37	0.00
0.50	0.00	0.000	48.37	0.00
1.00	0.00	0.000	48.37	0.00
1.50	0.00	0.000	48.38	0.00
2.00	0.01	0.000	48.40	0.01
2.50	0.02	0.000	48.42	0.02
3.00	0.03	0.000	48.43	0.03
3.50	0.03	0.000	48.44	0.03
4.00	0.04	0.000	48.45	0.04
4.50	0.05	0.000	48.45	0.05
5.00	0.06	0.000	48.46	0.06
5.50	0.07	0.000	48.47	0.07
6.00	0.07	0.000	48.47	0.07
6.50	0.09	0.000	48.48	0.09
7.00	0.10	0.000	48.49	0.10
7.50	0.12	0.000	48.50	0.12
8.00	0.14	0.000	48.51	0.14
8.50	0.17	0.000	48.53	0.17
9.00	0.21	0.000	48.55	0.21
9.50	0.25	0.000	48.56	0.25
10.00	0.29	0.000	48.58	0.29
10.50	0.36	0.000	48.60	0.36
11.00	0.44	0.000	48.63	0.44
11.50	0.70	0.001	48.70	0.69
12.00	4.37	0.011	49.45	2.90
12.50	1.21	0.003	48.94	1.61
13.00	0.52	0.001	48.66	0.53
13.50	0.41	0.000	48.62	0.41
14.00	0.33	0.000	48.59	0.33
14.50	0.29	0.000	48.58	0.29
15.00	0.25	0.000	48.56	0.25
15.50	0.21	0.000	48.55	0.21
16.00	0.17	0.000	48.53	0.17
16.50	0.15	0.000	48.52	0.15
17.00	0.14	0.000	48.51	0.14
17.50	0.12	0.000	48.50	0.12
18.00	0.11	0.000	48.49	0.11
18.50	0.10	0.000	48.49	0.10
19.00	0.09	0.000	48.49	0.09
19.50	0.09	0.000	48.48	0.09
20.00	0.08	0.000	48.48	0.08
20.50	0.08	0.000	48.48	0.08
21.00	0.08	0.000	48.47	0.08
21.50	0.07	0.000	48.47	0.07
22.00	0.07	0.000	48.47	0.07
22.50	0.07	0.000	48.47	0.07
23.00	0.06	0.000	48.46	0.06
23.50	0.06	0.000	48.46	0.06
24.00	0.06	0.000	48.46	0.06

Stage-Area-Storage for Pond 2: Hydrodynamic Separator

Elevation (feet)	Storage (acre-feet)	Elevation (feet)	Storage (acre-feet)	Elevation (feet)	Storage (acre-feet)
48.37	0.000	49.41	0.011	50.45	0.029
48.39	0.000	49.43	0.011	50.47	0.029
48.41	0.000	49.45	0.012	50.49	0.029
48.43	0.000	49.47	0.012	50.51	0.030
48.45	0.000	49.49	0.012	50.53	0.030
48.47	0.000	49.51	0.013	50.55	0.030
48.49	0.000	49.53	0.013	50.57	0.030
48.51	0.000	49.55	0.014	50.59	0.030
48.53	0.000	49.57	0.014	50.61	0.030
48.55	0.000	49.59	0.014	50.63	0.030
48.57	0.000	49.61	0.015	50.65	0.030
48.59	0.000	49.63	0.015	50.67	0.030
48.61	0.000	49.65	0.016	50.69	0.030
48.63	0.000	49.67	0.016	50.71	0.030
48.65	0.001	49.69	0.016	50.73	0.030
48.67	0.001	49.71	0.017	50.75	0.030
48.69	0.001	49.73	0.017	50.77	0.030
48.71	0.001	49.75	0.018	50.79	0.030
48.73	0.001	49.77	0.018	50.81	0.030
48.75	0.001	49.79	0.018	50.83	0.030
48.77	0.001	49.81	0.019	50.85	0.030
48.79	0.002	49.83	0.019	50.87	0.030
48.81	0.002	49.85	0.020	50.89	0.030
48.83	0.002	49.87	0.020	50.91	0.030
48.85	0.002	49.89	0.020	50.93	0.030
48.87	0.002	49.91	0.021	50.95	0.030
48.89	0.003	49.93	0.021	50.97	0.030
48.91	0.003	49.95	0.022	50.99	0.030
48.93	0.003	49.97	0.022		
48.95	0.003	49.99	0.022		
48.97	0.004	50.01	0.023		
48.99	0.004	50.03	0.023		
49.01	0.004	50.05	0.023		
49.03	0.004	50.07	0.024		
49.05	0.005	50.09	0.024		
49.07	0.005	50.11	0.024		
49.09	0.005	50.13	0.025		
49.11	0.006	50.15	0.025		
49.13	0.006	50.17	0.025		
49.15	0.006	50.19	0.026		
49.17	0.007	50.21	0.026		
49.19	0.007	50.23	0.026		
49.21	0.007	50.25	0.027		
49.23	0.008	50.27	0.027		
49.25	0.008	50.29	0.027		
49.27	0.008	50.31	0.028		
49.29	0.009	50.33	0.028		
49.31	0.009	50.35	0.028		
49.33	0.009	50.37	0.028		
49.35	0.010	50.39	0.029		
49.37	0.010	50.41	0.029		
49.39	0.010	50.43	0.029		

Summary for Link 4L: COMBINED

Inflow Area = 1.270 ac, 71.65% Impervious, Inflow Depth > 5.40" for 25-YR event

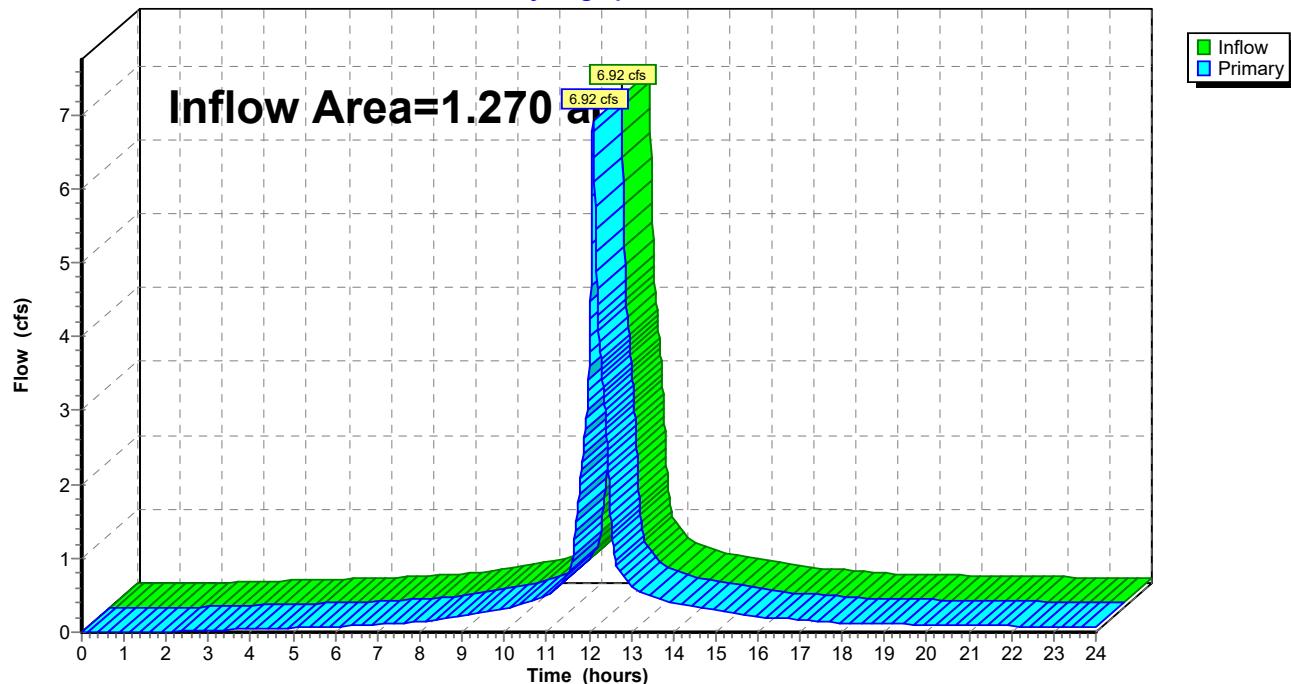
Inflow = 6.92 cfs @ 12.10 hrs, Volume= 0.572 af

Primary = 6.92 cfs @ 12.10 hrs, Volume= 0.572 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs

Link 4L: COMBINED

Hydrograph



Hydrograph for Link 4L: COMBINED

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00	0.00	0.00
0.50	0.00	0.00	0.00
1.00	0.00	0.00	0.00
1.50	0.00	0.00	0.00
2.00	0.01	0.00	0.01
2.50	0.02	0.00	0.02
3.00	0.03	0.00	0.03
3.50	0.03	0.00	0.03
4.00	0.04	0.00	0.04
4.50	0.05	0.00	0.05
5.00	0.06	0.00	0.06
5.50	0.07	0.00	0.07
6.00	0.07	0.00	0.07
6.50	0.09	0.00	0.09
7.00	0.11	0.00	0.11
7.50	0.12	0.00	0.12
8.00	0.14	0.00	0.14
8.50	0.18	0.00	0.18
9.00	0.22	0.00	0.22
9.50	0.27	0.00	0.27
10.00	0.31	0.00	0.31
10.50	0.39	0.00	0.39
11.00	0.49	0.00	0.49
11.50	0.78	0.00	0.78
12.00	3.60	0.00	3.60
12.50	1.83	0.00	1.83
13.00	0.63	0.00	0.63
13.50	0.49	0.00	0.49
14.00	0.39	0.00	0.39
14.50	0.34	0.00	0.34
15.00	0.30	0.00	0.30
15.50	0.25	0.00	0.25
16.00	0.21	0.00	0.21
16.50	0.19	0.00	0.19
17.00	0.17	0.00	0.17
17.50	0.15	0.00	0.15
18.00	0.13	0.00	0.13
18.50	0.12	0.00	0.12
19.00	0.11	0.00	0.11
19.50	0.11	0.00	0.11
20.00	0.10	0.00	0.10
20.50	0.10	0.00	0.10
21.00	0.09	0.00	0.09
21.50	0.09	0.00	0.09
22.00	0.08	0.00	0.08
22.50	0.08	0.00	0.08
23.00	0.08	0.00	0.08
23.50	0.07	0.00	0.07
24.00	0.07	0.00	0.07

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Type III 24-hr 50-YR Rainfall=7.05"

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Time span=0.00-24.00 hrs, dt=0.01 hrs, 2401 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

SubcatchmentBYPASS: BYPASS

Runoff Area=0.230 ac 0.00% Impervious Runoff Depth>4.74"
Tc=5.0 min CN=80 Runoff=1.31 cfs 0.091 af

SubcatchmentSITE: POST-DEV

Runoff Area=1.040 ac 87.50% Impervious Runoff Depth>6.57"
Tc=5.0 min CN=96 Runoff=7.39 cfs 0.569 af

Pond 2: HydrodynamicSeparator

Peak Elev=50.31' Storage=0.028 af Inflow=7.39 cfs 0.569 af
Outflow=7.06 cfs 0.569 af

Link 4L: COMBINED

Inflow=8.33 cfs 0.660 af
Primary=8.33 cfs 0.660 af

**Total Runoff Area = 1.270 ac Runoff Volume = 0.660 af Average Runoff Depth = 6.24"
28.35% Pervious = 0.360 ac 71.65% Impervious = 0.910 ac**

Summary for Subcatchment BYPASS: BYPASS

Runoff = 1.31 cfs @ 12.07 hrs, Volume= 0.091 af, Depth> 4.74"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 50-YR Rainfall=7.05"

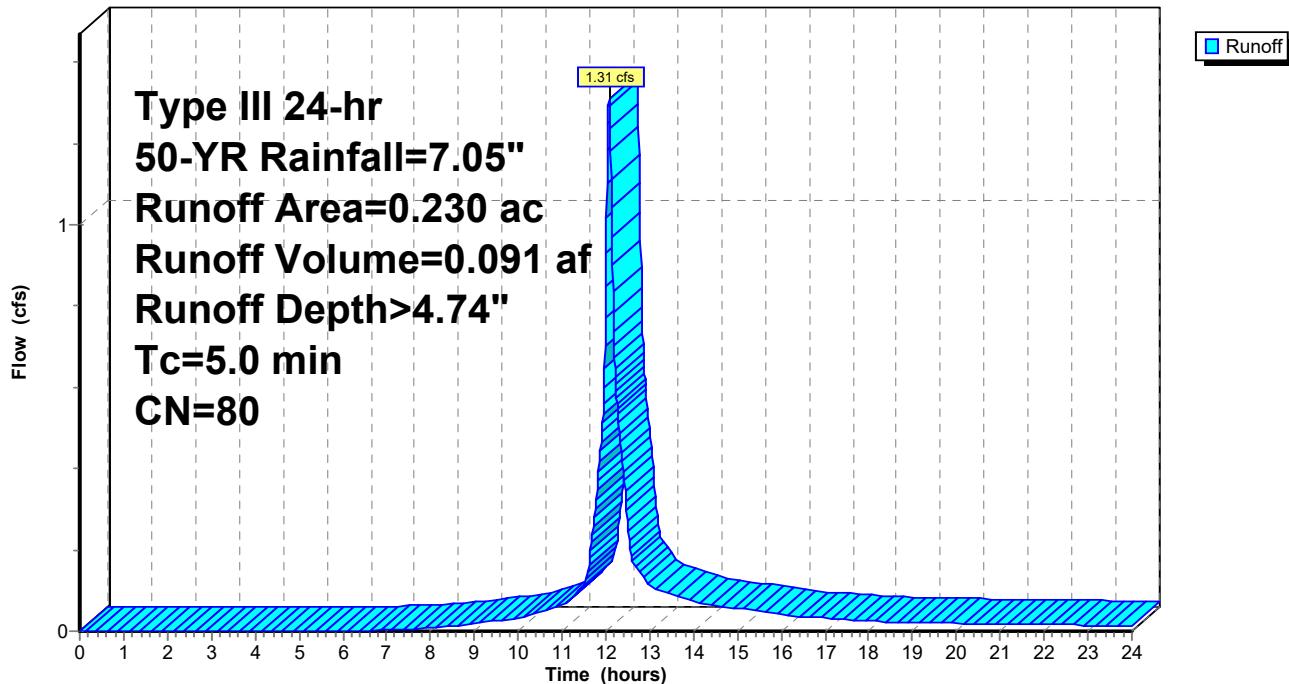
Area (ac)	CN	Description
-----------	----	-------------

* 0.230	80	
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0.230	100.00% Pervious Area
-------	-----------------------

Tc	Length	Slope	Velocity	Capacity	Description
(min)	(feet)	(ft/ft)	(ft/sec)	(cfs)	

5.0	Direct Entry,
-----	---------------

Subcatchment BYPASS: BYPASS**Hydrograph**

Hydrograph for Subcatchment BYPASS: BYPASS

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
0.50	0.04	0.00	0.00
1.00	0.07	0.00	0.00
1.50	0.11	0.00	0.00
2.00	0.14	0.00	0.00
2.50	0.18	0.00	0.00
3.00	0.22	0.00	0.00
3.50	0.26	0.00	0.00
4.00	0.30	0.00	0.00
4.50	0.35	0.00	0.00
5.00	0.40	0.00	0.00
5.50	0.45	0.00	0.00
6.00	0.51	0.00	0.00
6.50	0.57	0.00	0.00
7.00	0.64	0.01	0.00
7.50	0.72	0.02	0.01
8.00	0.80	0.03	0.01
8.50	0.91	0.06	0.01
9.00	1.03	0.09	0.02
9.50	1.17	0.14	0.03
10.00	1.33	0.21	0.03
10.50	1.53	0.30	0.05
11.00	1.76	0.42	0.06
11.50	2.10	0.62	0.11
12.00	3.52	1.66	0.85
12.50	4.95	2.85	0.27
13.00	5.29	3.15	0.12
13.50	5.52	3.35	0.09
14.00	5.72	3.53	0.07
14.50	5.88	3.67	0.06
15.00	6.02	3.80	0.06
15.50	6.14	3.91	0.05
16.00	6.25	4.00	0.04
16.50	6.33	4.08	0.04
17.00	6.41	4.15	0.03
17.50	6.48	4.22	0.03
18.00	6.54	4.27	0.02
18.50	6.60	4.32	0.02
19.00	6.65	4.37	0.02
19.50	6.70	4.42	0.02
20.00	6.75	4.46	0.02
20.50	6.79	4.50	0.02
21.00	6.83	4.54	0.02
21.50	6.88	4.58	0.02
22.00	6.91	4.62	0.02
22.50	6.95	4.65	0.02
23.00	6.99	4.68	0.01
23.50	7.02	4.71	0.01
24.00	7.05	4.74	0.01

Summary for Subcatchment SITE: POST-DEV

Runoff = 7.39 cfs @ 12.07 hrs, Volume= 0.569 af, Depth> 6.57"

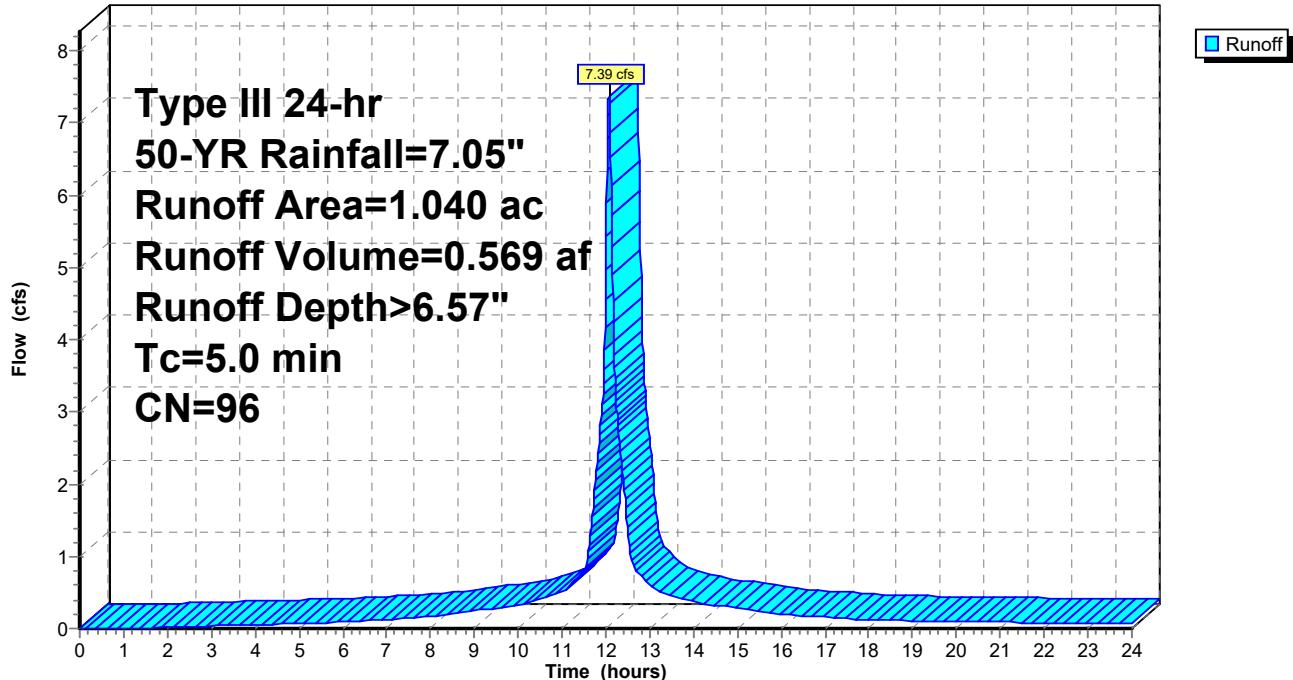
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
 Type III 24-hr 50-YR Rainfall=7.05"

Area (ac)	CN	Description
*	0.910	98
*	0.130	80
1.040	96	Weighted Average
0.130		12.50% Pervious Area
0.910		87.50% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0	Direct Entry,				

Subcatchment SITE: POST-DEV

Hydrograph



Hydrograph for Subcatchment SITE: POST-DEV

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
0.50	0.04	0.00	0.00
1.00	0.07	0.00	0.00
1.50	0.11	0.00	0.01
2.00	0.14	0.01	0.02
2.50	0.18	0.02	0.03
3.00	0.22	0.03	0.03
3.50	0.26	0.05	0.04
4.00	0.30	0.08	0.05
4.50	0.35	0.10	0.06
5.00	0.40	0.14	0.07
5.50	0.45	0.17	0.08
6.00	0.51	0.21	0.09
6.50	0.57	0.26	0.10
7.00	0.64	0.32	0.12
7.50	0.72	0.38	0.14
8.00	0.80	0.46	0.16
8.50	0.91	0.55	0.20
9.00	1.03	0.66	0.24
9.50	1.17	0.79	0.29
10.00	1.33	0.94	0.33
10.50	1.53	1.12	0.41
11.00	1.76	1.35	0.50
11.50	2.10	1.67	0.80
12.00	3.52	3.07	4.99
12.50	4.95	4.48	1.37
13.00	5.29	4.82	0.59
13.50	5.52	5.05	0.46
14.00	5.72	5.25	0.37
14.50	5.88	5.41	0.32
15.00	6.02	5.55	0.28
15.50	6.14	5.67	0.24
16.00	6.25	5.77	0.20
16.50	6.33	5.86	0.18
17.00	6.41	5.94	0.16
17.50	6.48	6.01	0.14
18.00	6.54	6.07	0.12
18.50	6.60	6.12	0.11
19.00	6.65	6.17	0.11
19.50	6.70	6.22	0.10
20.00	6.75	6.27	0.10
20.50	6.79	6.32	0.09
21.00	6.83	6.36	0.09
21.50	6.88	6.40	0.08
22.00	6.91	6.44	0.08
22.50	6.95	6.48	0.08
23.00	6.99	6.51	0.07
23.50	7.02	6.54	0.07
24.00	7.05	6.57	0.06

Summary for Pond 2: Hydrodynamic Separator

Inflow Area = 1.040 ac, 87.50% Impervious, Inflow Depth > 6.57" for 50-YR event
 Inflow = 7.39 cfs @ 12.07 hrs, Volume= 0.569 af
 Outflow = 7.06 cfs @ 12.09 hrs, Volume= 0.569 af, Atten= 4%, Lag= 1.4 min
 Primary = 7.06 cfs @ 12.09 hrs, Volume= 0.569 af

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
 Peak Elev= 50.31' @ 12.09 hrs Surf.Area= 0.013 ac Storage= 0.028 af

Plug-Flow detention time= 1.6 min calculated for 0.569 af (100% of inflow)
 Center-of-Mass det. time= 1.5 min (755.0 - 753.4)

Volume	Invert	Avail.Storage	Storage Description
#1	48.37'	0.009 af	24.0" Round Pipe Storage L= 128.9' S= 0.0015 '/"
#2	48.50'	0.014 af	24.0" Round Pipe Storage L= 191.2' S= 0.0015 '/"
#3	48.59'	0.007 af	18.0" Round Pipe Storage L= 182.7' S= 0.0050 '/"
			0.030 af Total Available Storage

Device	Routing	Invert	Outlet Devices
#1	Primary	48.27'	24.0" Round Culvert L= 13.3' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 48.27' / 48.25' S= 0.0015 '/" Cc= 0.900 n= 0.011 Concrete pipe, straight & clean, Flow Area= 3.14 sf
#2	Device 1	48.37'	8.0" Vert. Internal DVS Orifice Openings to Vortex Tubes (x2) X 2.00 C= 0.600
#3	Device 1	49.87'	3.0" long Internal DVS Weir 2 End Contraction(s)

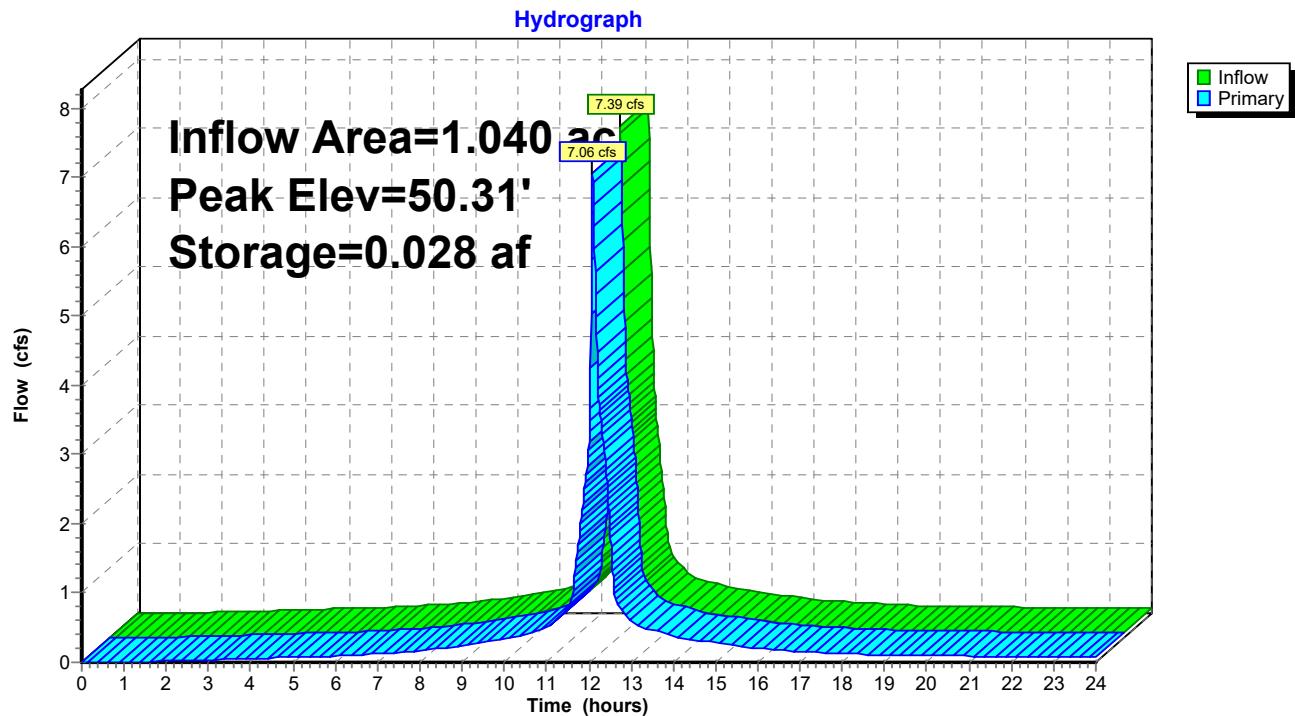
Primary OutFlow Max=7.04 cfs @ 12.09 hrs HW=50.31' (Free Discharge)

↑ 1=Culvert (Passes 7.04 cfs of 11.94 cfs potential flow)

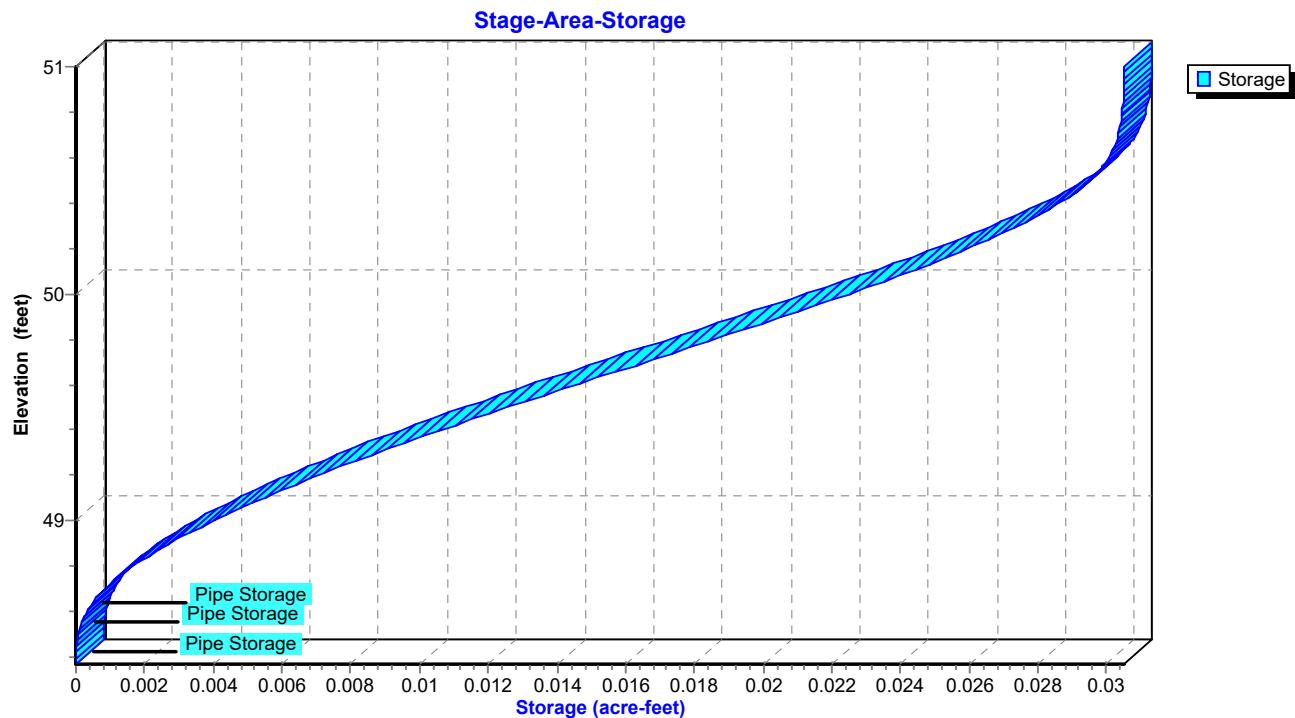
↑ 2=Internal DVS Orifice Openings to Vortex Tubes (x2)(Orifice Controls 4.26 cfs @ 6.10 fps)

↑ 3=Internal DVS Weir (Weir Controls 2.78 cfs @ 2.17 fps)

Pond 2: Hydrodynamic Separator



Pond 2: Hydrodynamic Separator



Hydrograph for Pond 2: Hydrodynamic Separator

Time (hours)	Inflow (cfs)	Storage (acre-feet)	Elevation (feet)	Primary (cfs)
0.00	0.00	0.000	48.37	0.00
0.50	0.00	0.000	48.37	0.00
1.00	0.00	0.000	48.37	0.00
1.50	0.01	0.000	48.40	0.01
2.00	0.02	0.000	48.41	0.02
2.50	0.03	0.000	48.43	0.02
3.00	0.03	0.000	48.44	0.03
3.50	0.04	0.000	48.45	0.04
4.00	0.05	0.000	48.46	0.05
4.50	0.06	0.000	48.46	0.06
5.00	0.07	0.000	48.47	0.07
5.50	0.08	0.000	48.48	0.08
6.00	0.09	0.000	48.48	0.09
6.50	0.10	0.000	48.49	0.10
7.00	0.12	0.000	48.50	0.12
7.50	0.14	0.000	48.51	0.14
8.00	0.16	0.000	48.52	0.16
8.50	0.20	0.000	48.54	0.20
9.00	0.24	0.000	48.56	0.24
9.50	0.29	0.000	48.58	0.29
10.00	0.33	0.000	48.59	0.33
10.50	0.41	0.000	48.62	0.41
11.00	0.50	0.001	48.65	0.50
11.50	0.80	0.001	48.73	0.78
12.00	4.99	0.015	49.61	3.19
12.50	1.37	0.005	49.05	1.98
13.00	0.59	0.001	48.68	0.60
13.50	0.46	0.000	48.64	0.47
14.00	0.37	0.000	48.61	0.38
14.50	0.32	0.000	48.59	0.33
15.00	0.28	0.000	48.58	0.28
15.50	0.24	0.000	48.56	0.24
16.00	0.20	0.000	48.54	0.20
16.50	0.18	0.000	48.53	0.18
17.00	0.16	0.000	48.52	0.16
17.50	0.14	0.000	48.51	0.14
18.00	0.12	0.000	48.50	0.12
18.50	0.11	0.000	48.50	0.11
19.00	0.11	0.000	48.49	0.11
19.50	0.10	0.000	48.49	0.10
20.00	0.10	0.000	48.49	0.10
20.50	0.09	0.000	48.48	0.09
21.00	0.09	0.000	48.48	0.09
21.50	0.08	0.000	48.48	0.08
22.00	0.08	0.000	48.48	0.08
22.50	0.08	0.000	48.47	0.08
23.00	0.07	0.000	48.47	0.07
23.50	0.07	0.000	48.47	0.07
24.00	0.06	0.000	48.46	0.06

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Type III 24-hr 50-YR Rainfall=7.05"

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Stage-Area-Storage for Pond 2: Hydrodynamic Separator

Elevation (feet)	Storage (acre-feet)	Elevation (feet)	Storage (acre-feet)	Elevation (feet)	Storage (acre-feet)
48.37	0.000	49.41	0.011	50.45	0.029
48.39	0.000	49.43	0.011	50.47	0.029
48.41	0.000	49.45	0.012	50.49	0.029
48.43	0.000	49.47	0.012	50.51	0.030
48.45	0.000	49.49	0.012	50.53	0.030
48.47	0.000	49.51	0.013	50.55	0.030
48.49	0.000	49.53	0.013	50.57	0.030
48.51	0.000	49.55	0.014	50.59	0.030
48.53	0.000	49.57	0.014	50.61	0.030
48.55	0.000	49.59	0.014	50.63	0.030
48.57	0.000	49.61	0.015	50.65	0.030
48.59	0.000	49.63	0.015	50.67	0.030
48.61	0.000	49.65	0.016	50.69	0.030
48.63	0.000	49.67	0.016	50.71	0.030
48.65	0.001	49.69	0.016	50.73	0.030
48.67	0.001	49.71	0.017	50.75	0.030
48.69	0.001	49.73	0.017	50.77	0.030
48.71	0.001	49.75	0.018	50.79	0.030
48.73	0.001	49.77	0.018	50.81	0.030
48.75	0.001	49.79	0.018	50.83	0.030
48.77	0.001	49.81	0.019	50.85	0.030
48.79	0.002	49.83	0.019	50.87	0.030
48.81	0.002	49.85	0.020	50.89	0.030
48.83	0.002	49.87	0.020	50.91	0.030
48.85	0.002	49.89	0.020	50.93	0.030
48.87	0.002	49.91	0.021	50.95	0.030
48.89	0.003	49.93	0.021	50.97	0.030
48.91	0.003	49.95	0.022	50.99	0.030
48.93	0.003	49.97	0.022		
48.95	0.003	49.99	0.022		
48.97	0.004	50.01	0.023		
48.99	0.004	50.03	0.023		
49.01	0.004	50.05	0.023		
49.03	0.004	50.07	0.024		
49.05	0.005	50.09	0.024		
49.07	0.005	50.11	0.024		
49.09	0.005	50.13	0.025		
49.11	0.006	50.15	0.025		
49.13	0.006	50.17	0.025		
49.15	0.006	50.19	0.026		
49.17	0.007	50.21	0.026		
49.19	0.007	50.23	0.026		
49.21	0.007	50.25	0.027		
49.23	0.008	50.27	0.027		
49.25	0.008	50.29	0.027		
49.27	0.008	50.31	0.028		
49.29	0.009	50.33	0.028		
49.31	0.009	50.35	0.028		
49.33	0.009	50.37	0.028		
49.35	0.010	50.39	0.029		
49.37	0.010	50.41	0.029		
49.39	0.010	50.43	0.029		

Summary for Link 4L: COMBINED

Inflow Area = 1.270 ac, 71.65% Impervious, Inflow Depth > 6.24" for 50-YR event

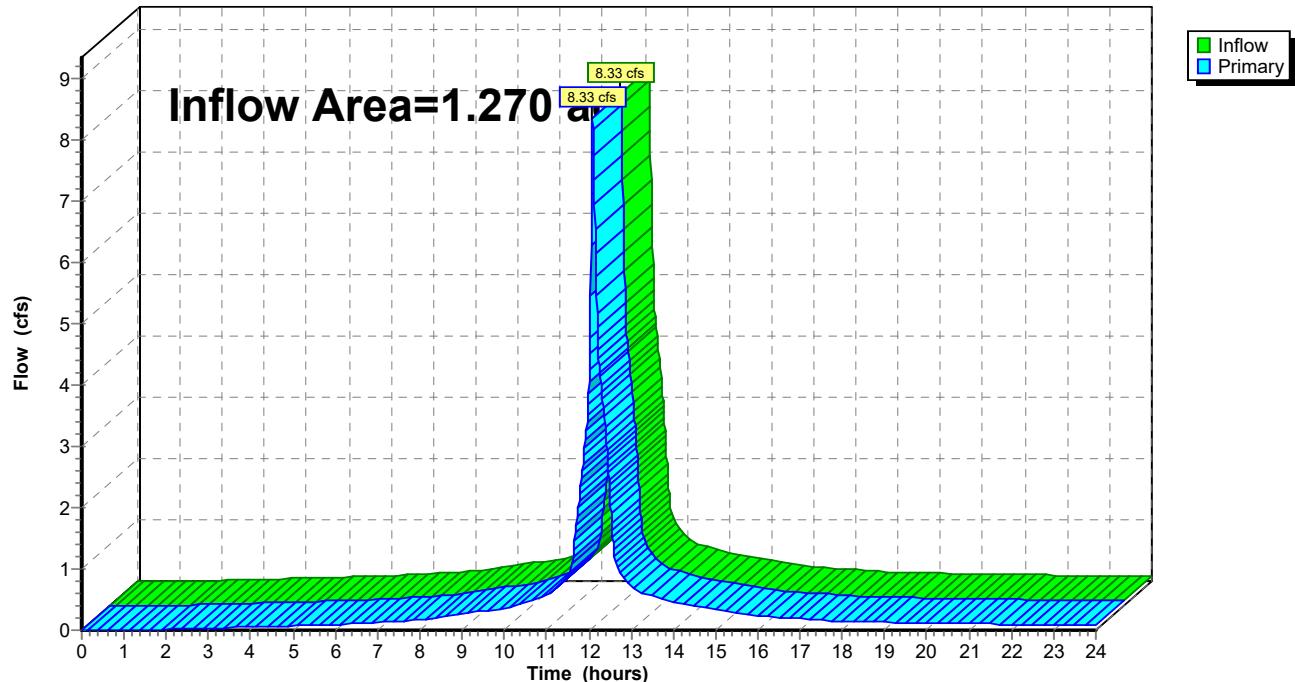
Inflow = 8.33 cfs @ 12.09 hrs, Volume= 0.660 af

Primary = 8.33 cfs @ 12.09 hrs, Volume= 0.660 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs

Link 4L: COMBINED

Hydrograph



Hydrograph for Link 4L: COMBINED

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00	0.00	0.00
0.50	0.00	0.00	0.00
1.00	0.00	0.00	0.00
1.50	0.01	0.00	0.01
2.00	0.02	0.00	0.02
2.50	0.02	0.00	0.02
3.00	0.03	0.00	0.03
3.50	0.04	0.00	0.04
4.00	0.05	0.00	0.05
4.50	0.06	0.00	0.06
5.00	0.07	0.00	0.07
5.50	0.08	0.00	0.08
6.00	0.09	0.00	0.09
6.50	0.11	0.00	0.11
7.00	0.13	0.00	0.13
7.50	0.15	0.00	0.15
8.00	0.17	0.00	0.17
8.50	0.21	0.00	0.21
9.00	0.26	0.00	0.26
9.50	0.31	0.00	0.31
10.00	0.36	0.00	0.36
10.50	0.46	0.00	0.46
11.00	0.56	0.00	0.56
11.50	0.90	0.00	0.90
12.00	4.04	0.00	4.04
12.50	2.25	0.00	2.25
13.00	0.72	0.00	0.72
13.50	0.56	0.00	0.56
14.00	0.45	0.00	0.45
14.50	0.39	0.00	0.39
15.00	0.34	0.00	0.34
15.50	0.29	0.00	0.29
16.00	0.24	0.00	0.24
16.50	0.21	0.00	0.21
17.00	0.19	0.00	0.19
17.50	0.17	0.00	0.17
18.00	0.15	0.00	0.15
18.50	0.14	0.00	0.14
19.00	0.13	0.00	0.13
19.50	0.12	0.00	0.12
20.00	0.12	0.00	0.12
20.50	0.11	0.00	0.11
21.00	0.11	0.00	0.11
21.50	0.10	0.00	0.10
22.00	0.10	0.00	0.10
22.50	0.09	0.00	0.09
23.00	0.09	0.00	0.09
23.50	0.08	0.00	0.08
24.00	0.08	0.00	0.08

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Type III 24-hr 100-YR Rainfall=8.00"

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Time span=0.00-24.00 hrs, dt=0.01 hrs, 2401 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

SubcatchmentBYPASS: BYPASS

Runoff Area=0.230 ac 0.00% Impervious Runoff Depth>5.62"
Tc=5.0 min CN=80 Runoff=1.55 cfs 0.108 af

SubcatchmentSITE: POST-DEV

Runoff Area=1.040 ac 87.50% Impervious Runoff Depth>7.52"
Tc=5.0 min CN=96 Runoff=8.40 cfs 0.651 af

Pond 2: HydrodynamicSeparator

Peak Elev=50.42' Storage=0.029 af Inflow=8.40 cfs 0.651 af
Outflow=8.26 cfs 0.651 af

Link 4L: COMBINED

Inflow=9.79 cfs 0.759 af
Primary=9.79 cfs 0.759 af

Total Runoff Area = 1.270 ac Runoff Volume = 0.759 af Average Runoff Depth = 7.17"
28.35% Pervious = 0.360 ac 71.65% Impervious = 0.910 ac

Summary for Subcatchment BYPASS: BYPASS

Runoff = 1.55 cfs @ 12.07 hrs, Volume= 0.108 af, Depth> 5.62"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-YR Rainfall=8.00"

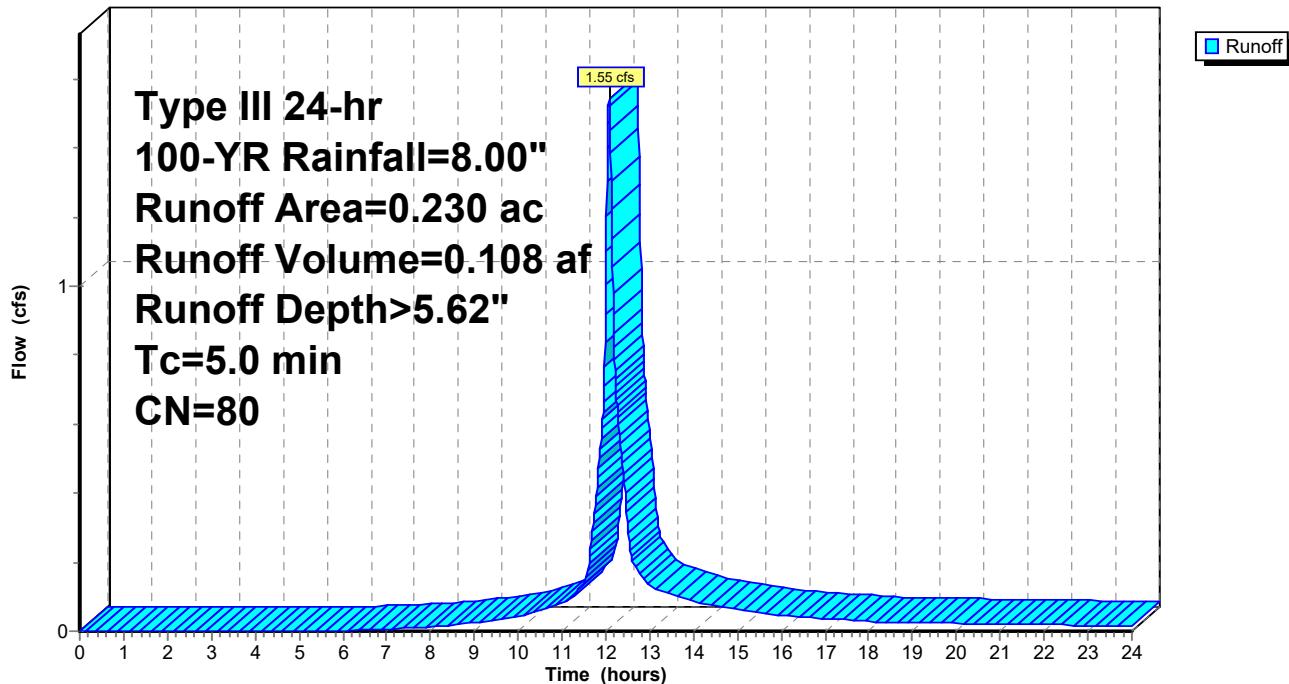
Area (ac)	CN	Description
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* 0.230	80	
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0.230	100.00% Pervious Area
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Tc	Length	Slope	Velocity	Capacity	Description
(min)	(feet)	(ft/ft)	(ft/sec)	(cfs)	

5.0	Direct Entry,
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Subcatchment BYPASS: BYPASS**Hydrograph**

Hydrograph for Subcatchment BYPASS: BYPASS

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
0.50	0.04	0.00	0.00
1.00	0.08	0.00	0.00
1.50	0.12	0.00	0.00
2.00	0.16	0.00	0.00
2.50	0.20	0.00	0.00
3.00	0.25	0.00	0.00
3.50	0.29	0.00	0.00
4.00	0.34	0.00	0.00
4.50	0.40	0.00	0.00
5.00	0.45	0.00	0.00
5.50	0.51	0.00	0.00
6.00	0.58	0.00	0.00
6.50	0.65	0.01	0.00
7.00	0.72	0.02	0.01
7.50	0.81	0.03	0.01
8.00	0.91	0.06	0.01
8.50	1.03	0.09	0.02
9.00	1.17	0.14	0.02
9.50	1.33	0.21	0.03
10.00	1.51	0.29	0.04
10.50	1.73	0.41	0.06
11.00	2.00	0.56	0.08
11.50	2.38	0.81	0.14
12.00	4.00	2.04	1.01
12.50	5.62	3.44	0.31
13.00	6.00	3.78	0.13
13.50	6.27	4.02	0.11
14.00	6.49	4.22	0.09
14.50	6.67	4.39	0.08
15.00	6.83	4.54	0.07
15.50	6.97	4.67	0.06
16.00	7.09	4.78	0.05
16.50	7.19	4.87	0.04
17.00	7.28	4.95	0.04
17.50	7.36	5.02	0.03
18.00	7.42	5.09	0.03
18.50	7.49	5.15	0.03
19.00	7.55	5.20	0.03
19.50	7.60	5.25	0.02
20.00	7.66	5.30	0.02
20.50	7.71	5.35	0.02
21.00	7.76	5.40	0.02
21.50	7.80	5.44	0.02
22.00	7.85	5.48	0.02
22.50	7.89	5.52	0.02
23.00	7.93	5.56	0.02
23.50	7.96	5.59	0.02
24.00	8.00	5.63	0.01

Summary for Subcatchment SITE: POST-DEV

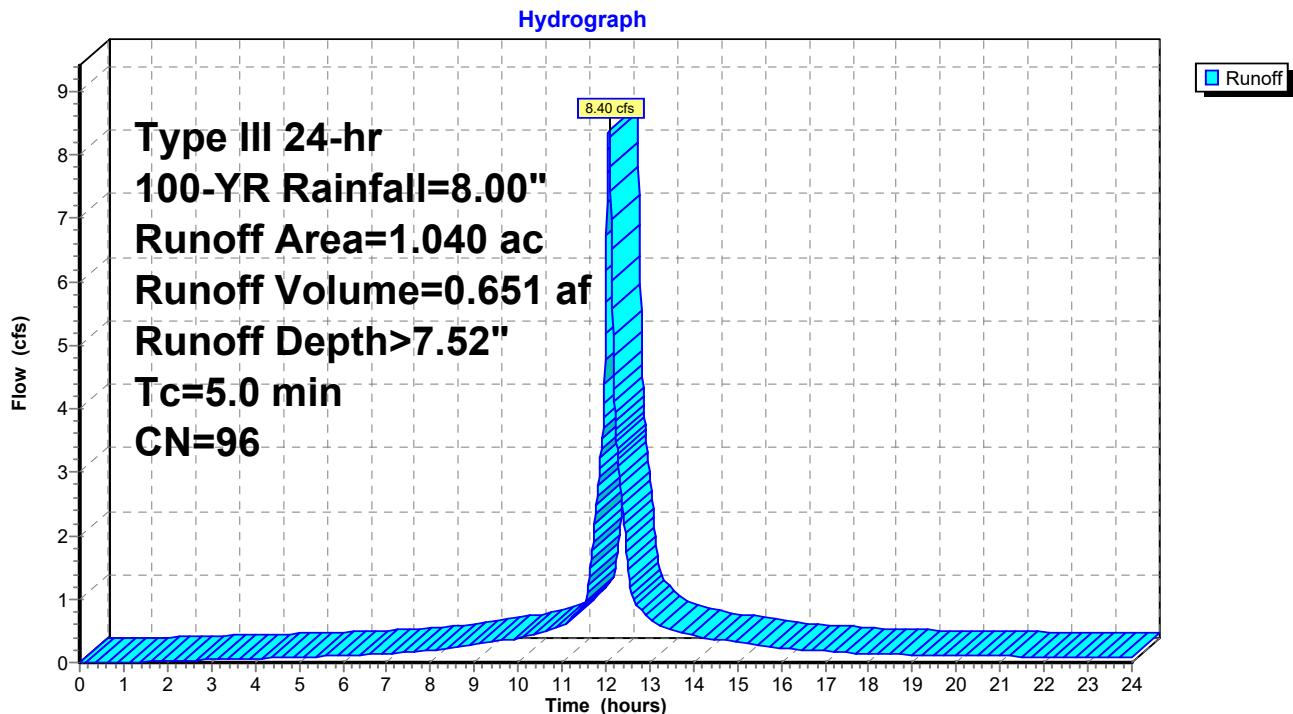
Runoff = 8.40 cfs @ 12.07 hrs, Volume= 0.651 af, Depth> 7.52"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
 Type III 24-hr 100-YR Rainfall=8.00"

Area (ac)	CN	Description
*	0.910	98
*	0.130	80
1.040	96	Weighted Average
0.130		12.50% Pervious Area
0.910		87.50% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0	Direct Entry,				

Subcatchment SITE: POST-DEV



Hydrograph for Subcatchment SITE: POST-DEV

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
0.50	0.04	0.00	0.00
1.00	0.08	0.00	0.00
1.50	0.12	0.00	0.01
2.00	0.16	0.01	0.02
2.50	0.20	0.03	0.03
3.00	0.25	0.05	0.04
3.50	0.29	0.07	0.06
4.00	0.34	0.10	0.07
4.50	0.40	0.14	0.08
5.00	0.45	0.17	0.09
5.50	0.51	0.22	0.10
6.00	0.58	0.27	0.10
6.50	0.65	0.32	0.12
7.00	0.72	0.39	0.15
7.50	0.81	0.46	0.17
8.00	0.91	0.55	0.19
8.50	1.03	0.66	0.23
9.00	1.17	0.78	0.28
9.50	1.33	0.93	0.33
10.00	1.51	1.11	0.38
10.50	1.73	1.32	0.48
11.00	2.00	1.57	0.58
11.50	2.38	1.95	0.92
12.00	4.00	3.54	5.67
12.50	5.62	5.15	1.56
13.00	6.00	5.53	0.67
13.50	6.27	5.79	0.53
14.00	6.49	6.01	0.42
14.50	6.67	6.20	0.37
15.00	6.83	6.36	0.32
15.50	6.97	6.50	0.27
16.00	7.09	6.61	0.22
16.50	7.19	6.71	0.20
17.00	7.28	6.80	0.18
17.50	7.36	6.88	0.16
18.00	7.42	6.95	0.14
18.50	7.49	7.01	0.13
19.00	7.55	7.07	0.12
19.50	7.60	7.12	0.12
20.00	7.66	7.18	0.11
20.50	7.71	7.23	0.10
21.00	7.76	7.28	0.10
21.50	7.80	7.32	0.10
22.00	7.85	7.37	0.09
22.50	7.89	7.41	0.09
23.00	7.93	7.45	0.08
23.50	7.96	7.49	0.08
24.00	8.00	7.52	0.07

Summary for Pond 2: Hydrodynamic Separator

Inflow Area = 1.040 ac, 87.50% Impervious, Inflow Depth > 7.52" for 100-YR event
 Inflow = 8.40 cfs @ 12.07 hrs, Volume= 0.651 af
 Outflow = 8.26 cfs @ 12.08 hrs, Volume= 0.651 af, Atten= 2%, Lag= 0.9 min
 Primary = 8.26 cfs @ 12.08 hrs, Volume= 0.651 af

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
 Peak Elev= 50.42' @ 12.08 hrs Surf.Area= 0.010 ac Storage= 0.029 af

Plug-Flow detention time= 1.6 min calculated for 0.651 af (100% of inflow)
 Center-of-Mass det. time= 1.6 min (752.5 - 751.0)

Volume	Invert	Avail.Storage	Storage Description
#1	48.37'	0.009 af	24.0" Round Pipe Storage L= 128.9' S= 0.0015 '/"
#2	48.50'	0.014 af	24.0" Round Pipe Storage L= 191.2' S= 0.0015 '/"
#3	48.59'	0.007 af	18.0" Round Pipe Storage L= 182.7' S= 0.0050 '/"
			0.030 af Total Available Storage

Device	Routing	Invert	Outlet Devices
#1	Primary	48.27'	24.0" Round Culvert L= 13.3' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 48.27' / 48.25' S= 0.0015 '/" Cc= 0.900 n= 0.011 Concrete pipe, straight & clean, Flow Area= 3.14 sf
#2	Device 1	48.37'	8.0" Vert. Internal DVS Orifice Openings to Vortex Tubes (x2) X 2.00 C= 0.600
#3	Device 1	49.87'	3.0" long Internal DVS Weir 2 End Contraction(s)

Primary OutFlow Max=8.23 cfs @ 12.08 hrs HW=50.42' (Free Discharge)

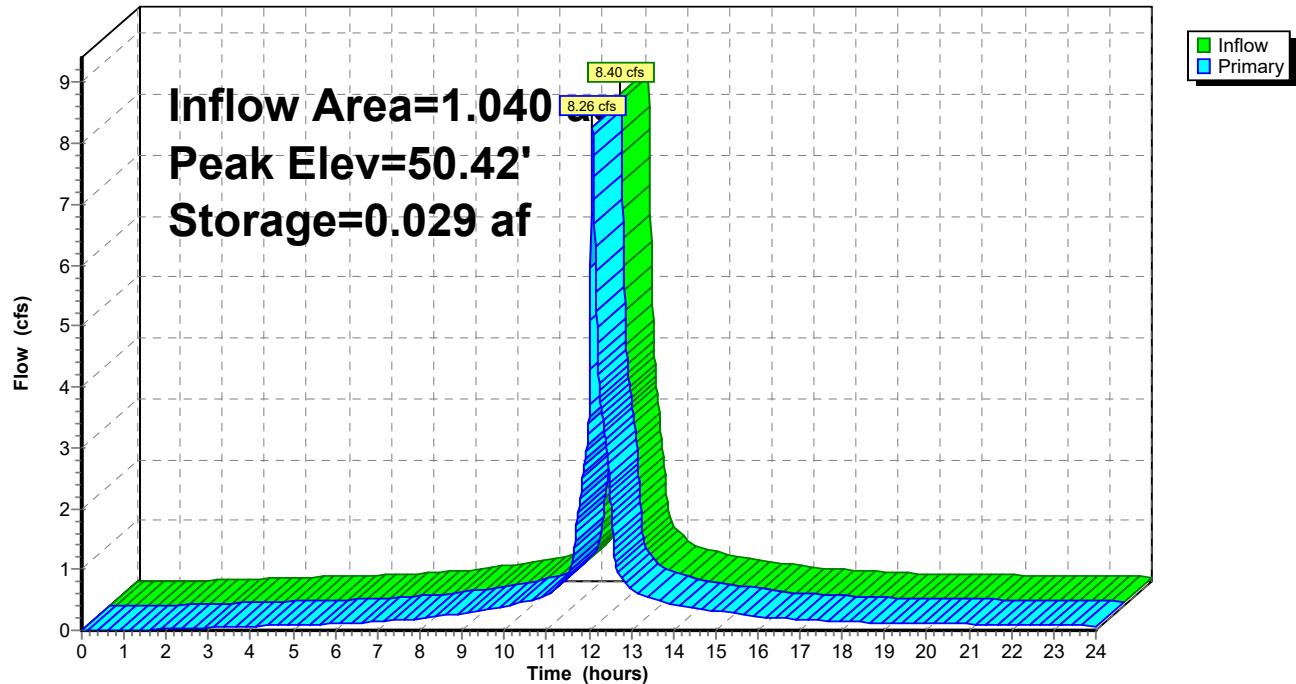
↑ 1=Culvert (Passes 8.23 cfs of 12.87 cfs potential flow)

↑ 2=Internal DVS Orifice Openings to Vortex Tubes (x2)(Orifice Controls 4.40 cfs @ 6.30 fps)

↑ 3=Internal DVS Weir (Weir Controls 3.83 cfs @ 2.42 fps)

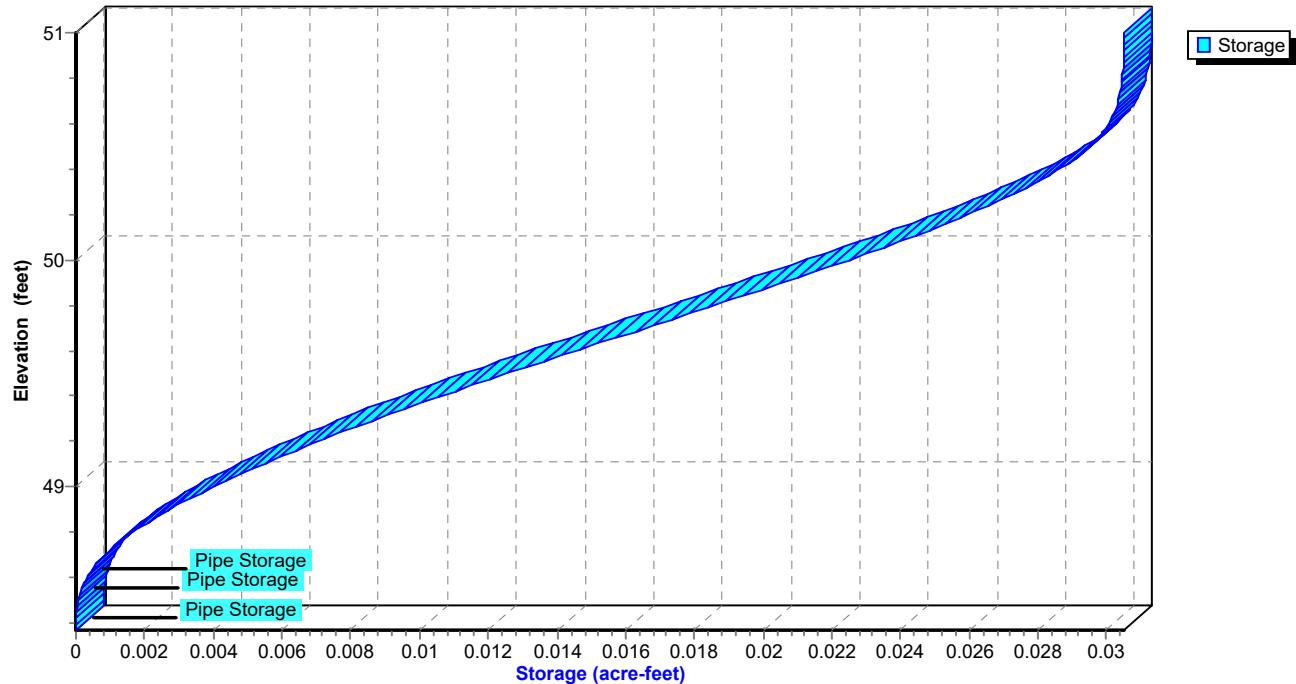
Pond 2: Hydrodynamic Separator

Hydrograph



Pond 2: Hydrodynamic Separator

Stage-Area-Storage



Hydrograph for Pond 2: Hydrodynamic Separator

Time (hours)	Inflow (cfs)	Storage (acre-feet)	Elevation (feet)	Primary (cfs)
0.00	0.00	0.000	48.37	0.00
0.50	0.00	0.000	48.37	0.00
1.00	0.00	0.000	48.37	0.00
1.50	0.01	0.000	48.41	0.01
2.00	0.02	0.000	48.43	0.02
2.50	0.03	0.000	48.44	0.03
3.00	0.04	0.000	48.45	0.04
3.50	0.06	0.000	48.46	0.06
4.00	0.07	0.000	48.47	0.07
4.50	0.08	0.000	48.47	0.08
5.00	0.09	0.000	48.48	0.09
5.50	0.10	0.000	48.49	0.10
6.00	0.10	0.000	48.49	0.10
6.50	0.12	0.000	48.50	0.12
7.00	0.15	0.000	48.51	0.14
7.50	0.17	0.000	48.53	0.17
8.00	0.19	0.000	48.54	0.19
8.50	0.23	0.000	48.56	0.23
9.00	0.28	0.000	48.57	0.28
9.50	0.33	0.000	48.59	0.33
10.00	0.38	0.000	48.61	0.38
10.50	0.48	0.000	48.64	0.47
11.00	0.58	0.001	48.67	0.57
11.50	0.92	0.001	48.76	0.89
12.00	5.67	0.019	49.80	3.52
12.50	1.56	0.007	49.19	2.34
13.00	0.67	0.001	48.70	0.69
13.50	0.53	0.001	48.66	0.53
14.00	0.42	0.000	48.63	0.43
14.50	0.37	0.000	48.61	0.37
15.00	0.32	0.000	48.59	0.32
15.50	0.27	0.000	48.57	0.27
16.00	0.22	0.000	48.55	0.23
16.50	0.20	0.000	48.54	0.20
17.00	0.18	0.000	48.53	0.18
17.50	0.16	0.000	48.52	0.16
18.00	0.14	0.000	48.51	0.14
18.50	0.13	0.000	48.51	0.13
19.00	0.12	0.000	48.50	0.12
19.50	0.12	0.000	48.50	0.12
20.00	0.11	0.000	48.50	0.11
20.50	0.10	0.000	48.49	0.10
21.00	0.10	0.000	48.49	0.10
21.50	0.10	0.000	48.49	0.10
22.00	0.09	0.000	48.48	0.09
22.50	0.09	0.000	48.48	0.09
23.00	0.08	0.000	48.48	0.08
23.50	0.08	0.000	48.47	0.08
24.00	0.07	0.000	48.47	0.07

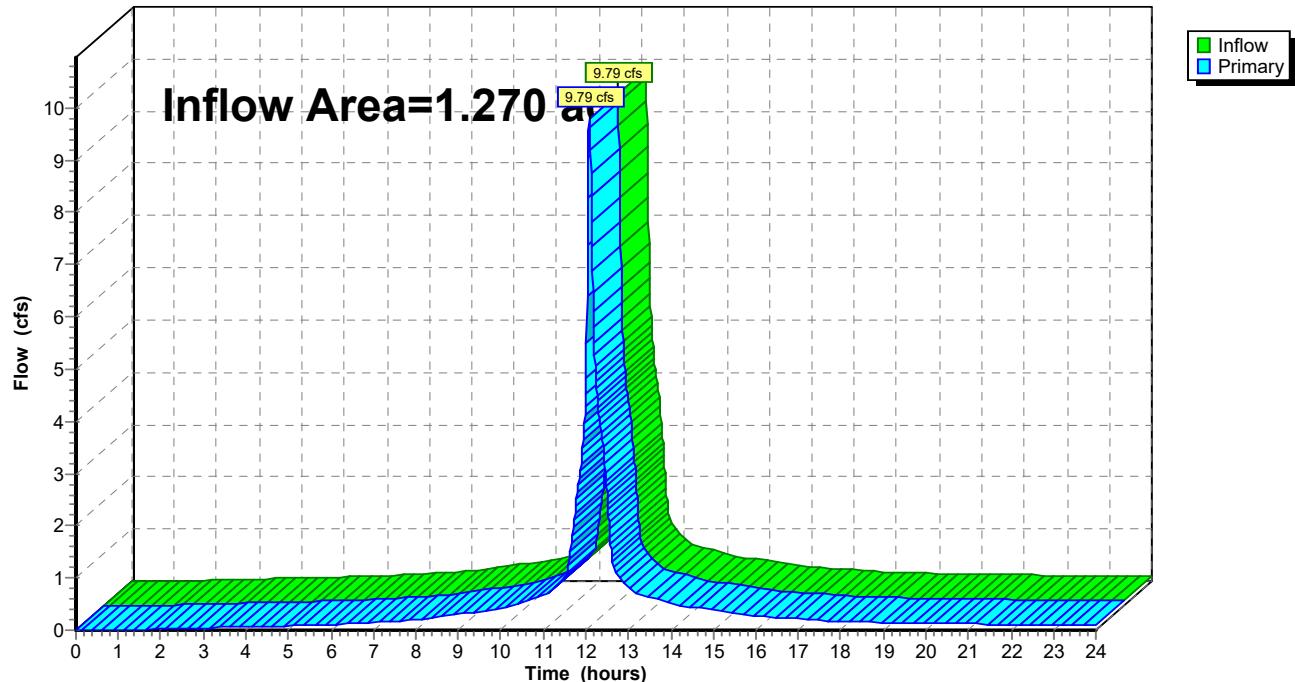
Stage-Area-Storage for Pond 2: Hydrodynamic Separator

Elevation (feet)	Storage (acre-feet)	Elevation (feet)	Storage (acre-feet)	Elevation (feet)	Storage (acre-feet)
48.37	0.000	49.41	0.011	50.45	0.029
48.39	0.000	49.43	0.011	50.47	0.029
48.41	0.000	49.45	0.012	50.49	0.029
48.43	0.000	49.47	0.012	50.51	0.030
48.45	0.000	49.49	0.012	50.53	0.030
48.47	0.000	49.51	0.013	50.55	0.030
48.49	0.000	49.53	0.013	50.57	0.030
48.51	0.000	49.55	0.014	50.59	0.030
48.53	0.000	49.57	0.014	50.61	0.030
48.55	0.000	49.59	0.014	50.63	0.030
48.57	0.000	49.61	0.015	50.65	0.030
48.59	0.000	49.63	0.015	50.67	0.030
48.61	0.000	49.65	0.016	50.69	0.030
48.63	0.000	49.67	0.016	50.71	0.030
48.65	0.001	49.69	0.016	50.73	0.030
48.67	0.001	49.71	0.017	50.75	0.030
48.69	0.001	49.73	0.017	50.77	0.030
48.71	0.001	49.75	0.018	50.79	0.030
48.73	0.001	49.77	0.018	50.81	0.030
48.75	0.001	49.79	0.018	50.83	0.030
48.77	0.001	49.81	0.019	50.85	0.030
48.79	0.002	49.83	0.019	50.87	0.030
48.81	0.002	49.85	0.020	50.89	0.030
48.83	0.002	49.87	0.020	50.91	0.030
48.85	0.002	49.89	0.020	50.93	0.030
48.87	0.002	49.91	0.021	50.95	0.030
48.89	0.003	49.93	0.021	50.97	0.030
48.91	0.003	49.95	0.022	50.99	0.030
48.93	0.003	49.97	0.022		
48.95	0.003	49.99	0.022		
48.97	0.004	50.01	0.023		
48.99	0.004	50.03	0.023		
49.01	0.004	50.05	0.023		
49.03	0.004	50.07	0.024		
49.05	0.005	50.09	0.024		
49.07	0.005	50.11	0.024		
49.09	0.005	50.13	0.025		
49.11	0.006	50.15	0.025		
49.13	0.006	50.17	0.025		
49.15	0.006	50.19	0.026		
49.17	0.007	50.21	0.026		
49.19	0.007	50.23	0.026		
49.21	0.007	50.25	0.027		
49.23	0.008	50.27	0.027		
49.25	0.008	50.29	0.027		
49.27	0.008	50.31	0.028		
49.29	0.009	50.33	0.028		
49.31	0.009	50.35	0.028		
49.33	0.009	50.37	0.028		
49.35	0.010	50.39	0.029		
49.37	0.010	50.41	0.029		
49.39	0.010	50.43	0.029		

Summary for Link 4L: COMBINED

Inflow Area = 1.270 ac, 71.65% Impervious, Inflow Depth > 7.17" for 100-YR event
Inflow = 9.79 cfs @ 12.08 hrs, Volume= 0.759 af
Primary = 9.79 cfs @ 12.08 hrs, Volume= 0.759 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs

Link 4L: COMBINED**Hydrograph**

Hydrograph for Link 4L: COMBINED

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00	0.00	0.00
0.50	0.00	0.00	0.00
1.00	0.00	0.00	0.00
1.50	0.01	0.00	0.01
2.00	0.02	0.00	0.02
2.50	0.03	0.00	0.03
3.00	0.04	0.00	0.04
3.50	0.06	0.00	0.06
4.00	0.07	0.00	0.07
4.50	0.08	0.00	0.08
5.00	0.09	0.00	0.09
5.50	0.10	0.00	0.10
6.00	0.11	0.00	0.11
6.50	0.13	0.00	0.13
7.00	0.15	0.00	0.15
7.50	0.18	0.00	0.18
8.00	0.20	0.00	0.20
8.50	0.25	0.00	0.25
9.00	0.31	0.00	0.31
9.50	0.36	0.00	0.36
10.00	0.42	0.00	0.42
10.50	0.53	0.00	0.53
11.00	0.65	0.00	0.65
11.50	1.03	0.00	1.03
12.00	4.53	0.00	4.53
12.50	2.65	0.00	2.65
13.00	0.82	0.00	0.82
13.50	0.63	0.00	0.63
14.00	0.51	0.00	0.51
14.50	0.45	0.00	0.45
15.00	0.39	0.00	0.39
15.50	0.33	0.00	0.33
16.00	0.27	0.00	0.27
16.50	0.24	0.00	0.24
17.00	0.22	0.00	0.22
17.50	0.19	0.00	0.19
18.00	0.17	0.00	0.17
18.50	0.16	0.00	0.16
19.00	0.15	0.00	0.15
19.50	0.14	0.00	0.14
20.00	0.13	0.00	0.13
20.50	0.13	0.00	0.13
21.00	0.12	0.00	0.12
21.50	0.12	0.00	0.12
22.00	0.11	0.00	0.11
22.50	0.10	0.00	0.10
23.00	0.10	0.00	0.10
23.50	0.09	0.00	0.09
24.00	0.09	0.00	0.09